



09770509.010902

#10

## SEQUENCE LISTING

&lt;110&gt; Katagiri, Fumi

<120> OOMYCETE FTSZ-MT AS A TARGET FOR  
ANTIMICROBIAL-SPECIFIC BIOCIDES

#10

&lt;130&gt; NADII.018A

&lt;160&gt; 32

&lt;170&gt; FastSEQ for Windows Version 4.0

&lt;210&gt; 1

&lt;211&gt; 535

&lt;212&gt; DNA

&lt;213&gt; Phytophthora infestans

&lt;220&gt;

&lt;221&gt; CDS

&lt;222&gt; (2)...(535)

&lt;400&gt; 1

c gcg tcg caa ttg gaa ggt gtg gag ttc att gta gcc aac aca gac tgt 49

Ala Ser Gln Leu Glu Gly Val Glu Phe Ile Val Ala Asn Thr Asp Cys

1

5

10

15

cag gct ctg gga cgc tcg ctg gcg ccg cac aag atc acg ctg ggc aaa 97

Gln Ala Leu Gly Arg Ser Leu Ala Pro His Lys Ile Thr Leu Gly Lys

20

25

30

gat atc acc aag gga cta gga gct gga tcc aaa cct gag ctg ggt aaa 145

Asp Ile Thr Lys Gly Leu Gly Ala Gly Ser Lys Pro Glu Leu Gly Lys

35

40

45

cgc tct gcg gaa cag cag aaa gtg gat atc caa cgg atg tta cag gac 193

Arg Ser Ala Glu Gln Gln Lys Val Asp Ile Gln Arg Met Leu Gln Asp

50

55

60

agc aac atg ctg ttt atc acg ggc gga atg ggc ggc gga acc tgc aca 241

Ser Asn Met Leu Phe Ile Thr Gly Gly Met Gly Gly Gly Thr Cys Thr

65

70

75

80

gga gcc gca cct gtc gtg gcc agt gta gcc agg gag ctg ggg atc cta 289

Gly Ala Ala Pro Val Val Ala Ser Val Ala Arg Glu Leu Gly Ile Leu

85

90

95

acg gtc gga gta gta agc aca ccg ttc cga tcc gaa gga ccc aat cgc 337

Thr Val Gly Val Val Ser Thr Pro Phe Arg Ser Glu Gly Pro Asn Arg

100

105

110

act cgt ctg gcc aat gct gga gta aaa gaa ctg gcc aag tac gtc gac 385

Thr Arg Leu Ala Asn Ala Gly Val Lys Glu Leu Ala Lys Tyr Val Asp

115

120

125

acc tta att gtc gtg ccc aac cag aac ttg ctg gct ttg gca gac aag 433  
 Thr Leu Ile Val Val Pro Asn Gln Asn Leu Leu Ala Leu Ala Asp Lys  
 130 135 140

agc acg acc atg ttg gaa gcc ttc cgg tat gcc gac gac gtg ctg ctt 481  
 Ser Thr Thr Met Leu Glu Ala Phe Arg Tyr Ala Asp Asp Val Leu Leu  
 145 150 155 160

gaa gga gtt aaa ggt gtc acg gac ttg atc gtt cgc ccg gga ctt atc 529  
 Glu Gly Val Lys Gly Val Thr Asp Leu Ile Val Arg Pro Gly Leu Ile  
 165 170 175

aat ttg 535  
 Asn Leu

<210> 2  
 <211> 178  
 <212> PRT  
 <213> *Phytophthora infestans*

<400> 2  
 Ala Ser Gln Leu Glu Gly Val Glu Phe Ile Val Ala Asn Thr Asp Cys  
 1 5 10 15  
 Gln Ala Leu Gly Arg Ser Leu Ala Pro His Lys Ile Thr Leu Gly Lys  
 20 25 30  
 Asp Ile Thr Lys Gly Leu Gly Ala Gly Ser Lys Pro Glu Leu Gly Lys  
 35 40 45  
 Arg Ser Ala Glu Gln Gln Lys Val Asp Ile Gln Arg Met Leu Gln Asp  
 50 55 60  
 Ser Asn Met Leu Phe Ile Thr Gly Gly Met Gly Gly Gly Thr Cys Thr  
 65 70 75 80  
 Gly Ala Ala Pro Val Val Ala Ser Val Ala Arg Glu Leu Gly Ile Leu  
 85 90 95  
 Thr Val Gly Val Val Ser Thr Pro Phe Arg Ser Glu Gly Pro Asn Arg  
 100 105 110  
 Thr Arg Leu Ala Asn Ala Gly Val Lys Glu Leu Ala Lys Tyr Val Asp  
 115 120 125  
 Thr Leu Ile Val Val Pro Asn Gln Asn Leu Leu Ala Leu Ala Asp Lys  
 130 135 140  
 Ser Thr Thr Met Leu Glu Ala Phe Arg Tyr Ala Asp Asp Val Leu Leu  
 145 150 155 160  
 Glu Gly Val Lys Gly Val Thr Asp Leu Ile Val Arg Pro Gly Leu Ile  
 165 170 175  
 Asn Leu

<210> 3  
 <211> 220  
 <212> DNA  
 <213> *Phytophthora infestans*

<220>  
 <221> CDS  
 <222> (2)...(220)

<223> cDNA

<400> 3

c gcg cgc ggc ctg cag ggt gtg gag ttt ctt gtt tgc aac acg gat gct 49  
 Ala Arg Gly Leu Gln Gly Val Glu Phe Leu Val Cys Asn Thr Asp Ala  
 1 5 10 15

cag cac tta cgc acg acg ctg acg gag aac cgc gtt cag atg gct cct 97  
 Gln His Leu Arg Thr Thr Leu Thr Glu Asn Arg Val Gln Met Ala Pro  
 20 25 30

gaa ttg act gga gga ttg ggc tgt ggc gct aac ccc gaa gtt ggc cga 145  
 Glu Leu Thr Gly Gly Leu Gly Cys Gly Ala Asn Pro Glu Val Gly Arg  
 35 40 45

gag gcg gca gag gcc gcg att gat gag att ttg gag cgc gtt cag ggt 193  
 Glu Ala Ala Glu Ala Ala Ile Asp Glu Ile Leu Glu Arg Val Gln Gly  
 50 55 60

gca aac atg atg ttt gtt act gcg ggt 220  
 Ala Asn Met Met Phe Val Thr Ala Gly  
 65 70

<210> 4

<211> 73

<212> PRT

<213> Phytophthora infestans

<400> 4

Ala Arg Gly Leu Gln Gly Val Glu Phe Leu Val Cys Asn Thr Asp Ala  
 1 5 10 15  
 Gln His Leu Arg Thr Thr Leu Thr Glu Asn Arg Val Gln Met Ala Pro  
 20 25 30  
 Glu Leu Thr Gly Gly Leu Gly Cys Gly Ala Asn Pro Glu Val Gly Arg  
 35 40 45  
 Glu Ala Ala Glu Ala Ala Ile Asp Glu Ile Leu Glu Arg Val Gln Gly  
 50 55 60  
 Ala Asn Met Met Phe Val Thr Ala Gly  
 65 70

<210> 5

<211> 388

<212> DNA

<213> Phytophthora infestans

<220>

<221> intron

<222> (143)...(204)

<221> intron

<222> (265)...(370)

<221> CDS

<222> (2)...(142)

<221> CDS

<222> (205) ... (264)

<221> CDS

<222> (371) ... (388)

<400> 5

c gcg cgc ggc ctg cag ggt gtg gag ttt ctt gtt tgc aac acg gat gct 49  
 Ala Arg Gly Leu Gln Gly Val Glu Phe Leu Val Cys Asn Thr Asp Ala  
           1                  5                  10                  15

cag cac tta cgc acg acg ctg acg gag aac cgc gtt cag atg gct cct 97  
 Gln His Leu Arg Thr Thr Leu Thr Glu Asn Arg Val Gln Met Ala Pro  
                   20                  25                  30

gaa ttg act gga gga ttg ggc tgt ggc gct aac ccc gaa gtt ggg 142  
 Glu Leu Thr Gly Gly Leu Gly Cys Gly Ala Asn Pro Glu Val Gly  
           35                  40                  45

tgagtgactg cgtaaaagcg gtattttttt ttcttacata ctgaccttaa ctattgatta 202  
 gc cga gag gcg gca gag gcc gcg att gat gag att ttg gag cgc gtt 249  
   Arg Glu Ala Ala Glu Ala Ala Ile Asp Glu Ile Leu Glu Arg Val  
                   50                  55                  60

cag ggt gca aac atg gtttgtctcg gtgacattgc gtttctcaag acgttccgat 304  
 Gln Gly Ala Asn Met  
                   65

ttgagcgaat gacttggtga tgacaacgat atgattatta acttctgctt ttatgccct 364  
 atatag atg ttt gtt act gcg ggt 388  
           Met Phe Val Thr Ala Gly  
                   70

<210> 6

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> PCR primer

<221> misc\_feature

<222> (1) ... (20)

<223> n = inosine

<400> 6

aaygcngtna ayaayatgat 20

<210> 7

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> PCR primer

<221> misc\_feature

<222> (1)...(20)

<223> n = inosine

<400> 7

gtncncgtnc cncnccccat

20

<210> 8

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> PCR primer

<221> misc\_feature

<222> (1)...(17)

<223> n = inosine

<400> 8

gtnccknacrt cngcraartc

20

<210> 9

<211> 1423

<212> DNA

<213> Phytophthora infestans

<220>

<221> CDS

<222> (2)...(1261)

<400> 9

g atg gcg ata tcc cgc atg aaa gct gcg gcg atg gcg ctg cta cgt gcc 49

Met Ala Ile Ser Arg Met Lys Ala Ala Ala Met Ala Leu Leu Arg Ala

1

5

10

15

cgc cag acc tcc cag tcc gcc act caa cac ctc gcc ttc tct act gaa 97

Arg Gln Thr Ser Gln Ser Ala Thr Gln His Leu Ala Phe Ser Thr Glu

20

25

30

gcc act gat gct gca gct gcc gcg tta cgc atg ggc ttt aaa aag gct 145

Ala Thr Asp Ala Ala Ala Ala Ala Leu Arg Met Gly Phe Lys Lys Ala

35

40

45

cga aaa gac gag gat ggc ggt gtg aaa gtg ggg ctg gag gca gag ccc 193

Arg Lys Asp Glu Asp Gly Gly Val Lys Val Gly Leu Glu Ala Glu Pro

50

55

60

gat tca cca aca gat gtg agc gcc gtt tcg acg cca gta gta gag aag 241

Asp Ser Pro Thr Asp Val Ser Ala Val Ser Thr Pro Val Val Glu Lys

65

70

75

80

aag ctc gtg ccg cca gcc atg agc tcc aca cag cca ctt tgg ctc aca 289

Lys Leu Val Pro Pro Ala Met Ser Ser Thr Gln Pro Leu Trp Leu Thr

85	90	95	
cag gac cat cct gtg aca gac ctg tgc ggc ttt gca ccg aag att gtg			337
Gln Asp His Pro Val Thr Asp Leu Ser Gly Phe Ala Pro Lys Ile Val			
100	105	110	
gtg gtt ggc gtc gga gga gct gga gga aat gcg gtg aac aac atg atc			385
Val Val Gly Val Gly Gly Ala Gly Gly Asn Ala Val Asn Asn Met Ile			
115	120	125	
gcg cgc ggc ctg cag ggt gtg gag ttt ctt gtt tgc aac acg gat gct			433
Ala Arg Gly Leu Gln Gly Val Glu Phe Leu Val Cys Asn Thr Asp Ala			
130	135	140	
cag cac tta cgc acg acg ctg acg gag aac cgc gtt cag atg gct cct			481
Gln His Leu Arg Thr Thr Leu Thr Glu Asn Arg Val Gln Met Ala Pro			
145	150	155	160
gaa ttg act gga gga ctg ggc tgt ggc gct aac ccc gaa gtt ggc cga			529
Glu Leu Thr Gly Gly Leu Gly Cys Gly Ala Asn Pro Glu Val Gly Arg			
165	170	175	
gag gcg gca gag gcc gcg att gat gag att ttg gag cgc gtt cag ggt			577
Glu Ala Ala Glu Ala Ala Ile Asp Glu Ile Leu Glu Arg Val Gln Gly			
180	185	190	
gca aac atg atg ttt gtt act gcg ggt atg ggt ggc gga aca ggt aca			625
Ala Asn Met Met Phe Val Thr Ala Gly Met Gly Gly Thr Gly Thr			
195	200	205	
ggt gca gca ccc gtc att gct cag gct gcc tta gat gct ggt atc ctc			673
Gly Ala Ala Pro Val Ile Ala Gln Ala Ala Leu Asp Ala Gly Ile Leu			
210	215	220	
acc gta gct gtc gtt act aag ccg ttc cgg ttt gag gga aac aac cgt			721
Thr Val Ala Val Val Thr Lys Pro Phe Arg Phe Glu Gly Asn Asn Arg			
225	230	235	240
gca aag ctt gcg gca caa ggc ctc gct gaa ctg aag gat agc gtc gat			769
Ala Lys Leu Ala Ala Gln Gly Leu Ala Glu Leu Lys Asp Ser Val Asp			
245	250	255	
acg atg ctt gtg atc ccg aac caa aac ttg ttc aac atg tca aat gag			817
Thr Met Leu Val Ile Pro Asn Gln Asn Leu Phe Asn Met Ser Asn Glu			
260	265	270	
cgc acc tgc ttg atg gac gca ttc aga atg gcg gac aat gtg ctt ctg			865
Arg Thr Ser Leu Met Asp Ala Phe Arg Met Ala Asp Asn Val Leu Leu			
275	280	285	
gac ggt gtc aag aac att tgc gat ttg atg gtg atg cct ggg ctc att			913
Asp Gly Val Lys Asn Ile Ser Asp Leu Met Val Met Pro Gly Leu Ile			
290	295	300	
aac ctt gac ttt gcg gat gtt caa tgc gtc atg caa aat atg gga aac			961
Asn Leu Asp Phe Ala Asp Val Gln Ser Val Met Gln Asn Met Gly Asn			
305	310	315	320

gct atg atg gga agt gga gag gcc gat gga gag aat cgg gct ctg cgt 1009  
 Ala Met Met Gly Ser Gly Glu Ala Asp Gly Glu Asn Arg Ala Leu Arg  
                   325                  330                  335

gct gct gaa gat gca ttg gcg aac cct ctt ctg ggt gat att tcg att 1057  
 Ala Ala Glu Asp Ala Leu Ala Asn Pro Leu Leu Gly Asp Ile Ser Ile  
                   340                  345                  350

aag gac gcc aag ggc atg atc gtt aat atc acg gga ggc tcc gac ctg 1105  
 Lys Asp Ala Lys Gly Met Ile Val Asn Ile Thr Gly Gly Ser Asp Leu  
                   355                  360                  365

acg cta ttt gaa gtt gat gag gct gct gag cgt gtg acg cgg gaa ctt 1153  
 Thr Leu Phe Glu Val Asp Glu Ala Ala Glu Arg Val Thr Arg Glu Leu  
                   370                  375                  380

gat gat cca cac gcc aac atc atc ttc ggt tcg acc ttc gac gac tcg 1201  
 Asp Asp Pro His Ala Asn Ile Ile Phe Gly Ser Thr Phe Asp Asp Ser  
                   385                  390                  395                  400

ctg ggc ggc aag cta cgc gtc tcc gtg gtt gcc act ggt att gcc gac 1249  
 Leu Gly Gly Lys Leu Arg Val Ser Val Val Ala Thr Gly Ile Ala Asp  
                   405                  410                  415

ccc gac aag tta tagaagccgt gatgttgccc agtatcaaag cgtaagcagg 1301  
 Pro Asp Lys Leu  
                   420

ggaatgacac ctaatgacgt gattgctcaa gaaatctcta caatttgaag tggcatcgat 1361  
 gtctccacgc acccgcgcggt gctgatcgga ttggtattat acggactgct tcatacttag 1421  
 tt 1423

<210> 10

<211> 420

<212> PRT

<213> *Phytophthora infestans*

<400> 10

Met Ala Ile Ser Arg Met Lys Ala Ala Ala Met Ala Leu Leu Arg Ala  
 1                  5                  10                  15  
 Arg Gln Thr Ser Gln Ser Ala Thr Gln His Leu Ala Phe Ser Thr Glu  
                   20                  25                  30  
 Ala Thr Asp Ala Ala Ala Ala Ala Leu Arg Met Gly Phe Lys Lys Ala  
                   35                  40                  45  
 Arg Lys Asp Glu Asp Gly Gly Val Lys Val Gly Leu Glu Ala Glu Pro  
                   50                  55                  60  
 Asp Ser Pro Thr Asp Val Ser Ala Val Ser Thr Pro Val Val Glu Lys  
                   65                  70                  75                  80  
 Lys Leu Val Pro Pro Ala Met Ser Ser Thr Gln Pro Leu Trp Leu Thr  
                   85                  90                  95  
 Gln Asp His Pro Val Thr Asp Leu Ser Gly Phe Ala Pro Lys Ile Val  
                   100                  105                  110  
 Val Val Gly Val Gly Gly Ala Gly Gly Asn Ala Val Asn Asn Met Ile  
                   115                  120                  125  
 Ala Arg Gly Leu Gln Gly Val Glu Phe Leu Val Cys Asn Thr Asp Ala  
                   130                  135                  140

Gln His Leu Arg Thr Thr Leu Thr Glu Asn Arg Val Gln Met Ala Pro  
 145 150 155 160  
 Glu Leu Thr Gly Gly Leu Gly Cys Gly Ala Asn Pro Glu Val Gly Arg  
 165 170 175  
 Glu Ala Ala Glu Ala Ala Ile Asp Glu Ile Leu Glu Arg Val Gln Gly  
 180 185 190  
 Ala Asn Met Met Phe Val Thr Ala Gly Met Gly Gly Gly Thr Gly Thr  
 195 200 205  
 Gly Ala Ala Pro Val Ile Ala Gln Ala Ala Leu Asp Ala Gly Ile Leu  
 210 215 220  
 Thr Val Ala Val Val Thr Lys Pro Phe Arg Phe Glu Gly Asn Asn Arg  
 225 230 235 240  
 Ala Lys Leu Ala Ala Gln Gly Leu Ala Glu Leu Lys Asp Ser Val Asp  
 245 250 255  
 Thr Met Leu Val Ile Pro Asn Gln Asn Leu Phe Asn Met Ser Asn Glu  
 260 265 270  
 Arg Thr Ser Leu Met Asp Ala Phe Arg Met Ala Asp Asn Val Leu Leu  
 275 280 285  
 Asp Gly Val Lys Asn Ile Ser Asp Leu Met Val Met Pro Gly Leu Ile  
 290 295 300  
 Asn Leu Asp Phe Ala Asp Val Gln Ser Val Met Gln Asn Met Gly Asn  
 305 310 315 320  
 Ala Met Met Gly Ser Gly Glu Ala Asp Gly Glu Asn Arg Ala Leu Arg  
 325 330 335  
 Ala Ala Glu Asp Ala Leu Ala Asn Pro Leu Leu Gly Asp Ile Ser Ile  
 340 345 350  
 Lys Asp Ala Lys Gly Met Ile Val Asn Ile Thr Gly Gly Ser Asp Leu  
 355 360 365  
 Thr Leu Phe Glu Val Asp Glu Ala Ala Glu Arg Val Thr Arg Glu Leu  
 370 375 380  
 Asp Asp Pro His Ala Asn Ile Ile Phe Gly Ser Thr Phe Asp Asp Ser  
 385 390 395 400  
 Leu Gly Gly Lys Leu Arg Val Ser Val Val Ala Thr Gly Ile Ala Asp  
 405 410 415  
 Pro Asp Lys Leu  
 420

&lt;210&gt; 11

&lt;211&gt; 583

&lt;212&gt; PRT

&lt;213&gt; Agrobacterium tumefaciens

&lt;400&gt; 11

Met Thr Ile Gln Leu Gln Lys Pro Asp Ile Thr Glu Leu Lys Pro Arg  
 1 5 10 15  
 Ile Thr Val Phe Gly Val Gly Gly Gly Gly Gly Asn Ala Val Asn Asn  
 20 25 30  
 Met Ile Thr Val Gly Leu Gln Gly Val Asp Phe Val Val Ala Asn Thr  
 35 40 45  
 Asp Ala Gln Ala Leu Thr Met Thr Lys Ala Asp Arg Val Ile Gln Leu  
 50 55 60  
 Gly Val Asn Val Thr Glu Gly Leu Gly Ala Gly Ser Gln Pro Glu Val  
 65 70 75 80  
 Gly Arg Ala Ala Ala Glu Glu Cys Ile Asp Glu Ile Ile Asp His Leu  
 85 90 95  
 Asn Gly Thr His Met Cys Phe Val Thr Ala Gly Met Gly Gly Gly Thr



110



<400> 12

10

355 360 365  
 Gln Pro Leu Gln Gln Gln Asn Val Asp His Ile Ala Leu Ala Ile Arg  
 370 375 380  
 Glu Ala Glu Met Glu Arg Glu Leu Asp Ile Ala Ala Arg Ala Gln Val  
 385 390 395 400  
 Ala Ala Pro Ala Pro Gln Pro Gln Pro His Leu Gln Glu Glu Ala Phe  
 405 410 415  
 Arg Pro Gln Ser Lys Leu Phe Ala Gly Val Ala Pro Thr Glu Ala Ala  
 420 425 430  
 Pro Val Met Arg Pro Ala Gln Pro Ala Pro Arg Pro Val Glu Met Gln  
 435 440 445  
 Ala Pro Val Gln Pro Gln Met Gln Ala Gln Pro Val Gln Gln Glu Pro  
 450 455 460  
 Thr Gln Val Val Arg Gln Gln Ala Glu Pro Val Arg Met Pro Lys Val  
 465 470 475 480  
 Glu Asp Phe Pro Pro Val Val Lys Ala Glu Met Asp Tyr Arg Thr Gln  
 485 490 495  
 Pro Ala Pro Ala His Gln Glu Glu Arg Gly Pro Met Gly Leu Leu Asn  
 500 505 510  
 Arg Ile Thr Ser Ser Leu Gly Leu Arg Glu Arg Glu Ala Thr Asn Val  
 515 520 525  
 Ser Ser Asp Met Thr Ala Ala Ala Pro Ser Ala Ala Ser Gln Gln Arg  
 530 535 540  
 Arg Pro Leu Ser Pro Glu Ala Ser Leu Tyr Ala Pro Arg Arg Gly Gln  
 545 550 555 560  
 Leu Asp Asp His Gly Arg Ala Ala Pro Gln Met Arg Ser His Glu Asp  
 565 570 575  
 Asp Gln Leu Glu Ile Pro Ala Phe Leu Arg Arg Gln Ser Ser  
 580 585 590

<210> 13  
 <211> 581  
 <212> PRT  
 <213> Bartonella clarridgeiae

<400> 13  
 Met Thr Ile Asn Leu His Arg Pro Asp Ile Ala Glu Leu Lys Pro Arg  
 1 5 10 15  
 Ile Thr Val Phe Gly Val Gly Gly Gly Gly Asn Ala Val Asn Asn  
 20 25 30  
 Met Ile Asn Ala Gly Leu Gln Gly Val Asp Phe Val Val Ala Asn Thr  
 35 40 45  
 Asp Ala Gln Ala Leu Ala Met Ser Lys Ala Glu Arg Val Ile Gln Leu  
 50 55 60  
 Gly Ala Ala Val Thr Glu Gly Leu Gly Ala Gly Ala Leu Pro Glu Val  
 65 70 75 80  
 Gly Arg Ala Ala Ala Asp Glu Cys Ile Asp Glu Ile Ile Asp His Leu  
 85 90 95  
 Ala Asp Ser His Met Val Phe Ile Thr Ala Gly Met Gly Gly Gly Thr  
 100 105 110  
 Gly Thr Gly Ala Ala Pro Val Val Ala Asn Ala Ala Arg Glu Lys Gly  
 115 120 125  
 Ile Leu Thr Val Gly Val Val Thr Lys Pro Phe Gln Phe Glu Gly Ala  
 130 135 140  
 Arg Arg Met Lys Thr Ala Glu Ala Gly Ile Glu Glu Leu Gln Lys Ser  
 145 150 155 160

Val Asp Thr Leu Ile Val Ile Pro Asn Gln Asn Leu Phe Arg Ile Ala  
 165 170 175  
 Asn Glu Lys Thr Thr Phe Ser Asp Ala Phe Ala Met Ala Asp Gln Val  
 180 185 190  
 Leu Tyr Ser Gly Val Ala Ser Ile Thr Asp Leu Met Ile Lys Glu Gly  
 195 200 205  
 Leu Ile Asn Leu Asp Phe Ala Asp Val Arg Ser Val Met His Glu Met  
 210 215 220  
 Gly Arg Ala Met Met Gly Thr Gly Glu Ala Ser Gly Asp Gly Arg Ala  
 225 230 235 240  
 Leu Ala Ala Ala Glu Ala Ala Ile Ala Asn Pro Leu Leu Asp Asp Thr  
 245 250 255  
 Ser Met Arg Gly Ala Arg Gly Leu Leu Ile Ser Ile Thr Gly Gly Arg  
 260 265 270  
 Asp Met Thr Leu Phe Glu Val Asp Glu Ala Ala Asn Arg Ile Arg Glu  
 275 280 285  
 Glu Val Asp Ala Asp Ala Asn Val Ile Phe Gly Ala Ile Asp Asp Glu  
 290 295 300  
 Ser Leu Glu Gly Val Ile Arg Val Ser Val Val Ala Thr Gly Ile Asp  
 305 310 315 320  
 Arg Glu Ile Asn Asp Val Ile Gln Pro Ser Asn Thr Lys Phe His Arg  
 325 330 335  
 Ser Ala Thr Ser Met Arg Lys Asn Asp Ala Gly Val Thr Gln Thr Ser  
 340 345 350  
 Ser Gln Ser Ser Ser Leu Arg Ser Glu Ser Met Val Glu Val Ile Glu  
 355 360 365  
 Ala Leu Glu Val Glu Met Lys Gln Pro Ile Glu Glu Pro Phe Cys Pro  
 370 375 380  
 Lys Ser Gln Phe Phe Val Gln Ser Thr Asp Thr Tyr Thr Pro Arg Ser  
 385 390 395 400  
 Met Asn Ala Ala Ser Tyr Gly Gln Asn Ile His Gly Gln Thr Ser Asn  
 405 410 415  
 Ala Leu Arg Met Gln Val Gly Cys Val Ser Gln Gln Pro Val Ala Lys  
 420 425 430  
 Ala Val Asn Met Glu Ala Thr Ala His Val Leu Asp Asp Met Thr Arg  
 435 440 445  
 Ile Val Glu Gln Lys Lys Lys Gln Ala Gln Met Gln Ser His Ser Met  
 450 455 460  
 Ser Met Arg Met Pro Glu Leu Lys Asp Phe Pro Ser Ser Ile Arg Gly  
 465 470 475 480  
 Gln Ser Thr Asn Phe Ser Asn Ala Asp Gln Gly Pro Arg Asn Leu Trp  
 485 490 495  
 Gln Arg Leu Lys Gln Ser Leu Thr Tyr Arg Glu Glu Ala Glu Pro Glu  
 500 505 510  
 Ala Arg Leu Glu Pro Ala Val Asn Ser Ser Leu Cys Lys Asp Ser His  
 515 520 525  
 Ile Ser Ser Ala Ser Ser Gln Gly Ile Ser Gln Asp Thr Ser Val Tyr  
 530 535 540  
 Ile Pro Arg His Ser Thr Glu Leu Gln Gln His Ala Ser Gln Asp Gln  
 545 550 555 560  
 Asn Val Cys Val Ser Glu Glu Asp Glu Leu Glu Ile Pro Ala Phe Leu  
 565 570 575  
 Arg Arg Gln Ala Asn  
 580

&lt;210&gt; 14

<211> 452  
 <212> PRT  
 <213> Rickettsia prowazekii

<400> 14

Met	Val	Leu	Asn	Ile	Lys	Ala	Pro	Glu	Asn	Ile	Val	Leu	Lys	Pro	Thr
1			5					10					15		
Ile	Thr	Val	Phe	Gly	Val	Gly	Gly	Ala	Gly	Ser	Asn	Ala	Val	Asn	Asn
		20					25					30			
Met	Ile	His	Ala	Asn	Leu	Gln	Gly	Ala	Asn	Phe	Val	Val	Ala	Asn	Thr
	35				40						45				
Asp	Ala	Gln	Ser	Leu	Glu	His	Ser	Leu	Cys	Ile	Asn	Lys	Ile	Gln	Leu
	50				55					60					
Gly	Val	Ser	Thr	Thr	Arg	Gly	Leu	Gly	Ala	Gly	Ala	Ser	Pro	Glu	Val
65				70				75					80		
Gly	Ala	Leu	Ala	Ala	Gln	Glu	Ser	Glu	Asn	Glu	Ile	Arg	Ser	Ser	Leu
			85					90					95		
Glu	Asn	Ser	Asn	Met	Val	Phe	Ile	Thr	Ala	Gly	Met	Gly	Gly	Gly	Thr
		100						105					110		
Gly	Thr	Gly	Ser	Ala	Pro	Ile	Ile	Ala	Arg	Ile	Ala	Lys	Glu	Leu	Gly
	115					120					125				
Ile	Leu	Thr	Val	Gly	Val	Val	Thr	Lys	Pro	Phe	His	Phe	Glu	Gly	Gly
	130				135						140				
His	Arg	Met	Lys	Thr	Ala	Asp	Lys	Gly	Leu	Ile	Glu	Leu	Gln	Gln	Phe
145				150					155					160	
Val	Asp	Thr	Leu	Ile	Val	Ile	Pro	Asn	Gln	Asn	Leu	Phe	Arg	Ile	Ala
			165					170						175	
Asn	Glu	Gln	Thr	Phe	Ala	Asp	Ala	Phe	Lys	Met	Ala	Asp	Asp	Val	
	180					185					190				
Leu	His	Ala	Gly	Val	Arg	Gly	Val	Thr	Asp	Leu	Met	Ile	Met	Pro	Gly
	195					200					205				
Leu	Ile	Asn	Leu	Asp	Phe	Ala	Asp	Ile	Lys	Ala	Val	Met	Ser	Glu	Met
	210				215						220				
Gly	Lys	Ala	Met	Met	Gly	Thr	Gly	Glu	Asp	Ser	Gly	Glu	Asp	Arg	Ala
225				230					235					240	
Ile	Lys	Ala	Ala	Glu	Ser	Ala	Ile	Ser	Asn	Pro	Leu	Leu	Asp	His	Ser
			245					250						255	
Ser	Met	Cys	Gly	Ala	Arg	Gly	Val	Leu	Ile	Asn	Ile	Thr	Gly	Gly	Pro
	260					265							270		
Asp	Met	Thr	Leu	Phe	Glu	Val	Asp	Asn	Ala	Ala	Asn	Arg	Ile	Arg	Glu
	275					280						285			
Glu	Val	Asp	Asn	Ile	Asp	Ala	Asn	Ile	Ile	Phe	Gly	Ser	Thr	Phe	Asn
	290				295					300					
Pro	Glu	Leu	Lys	Gly	Ile	Ile	Arg	Val	Ser	Val	Val	Ala	Thr	Gly	Ile
305				310					315					320	
Asp	Ala	Asp	Lys	Val	Pro	Lys	Tyr	Lys	Leu	Ala	Ile	Asp	Lys	Asn	Thr
			325					330						335	
Asn	Thr	Leu	Pro	Glu	Glu	Thr	Tyr	Asn	Glu	Ser	Ile	Ile	Gln	His	Thr
		340				345							350		
Gln	Ile	Glu	Thr	Ile	Pro	Ser	Phe	Asn	Ser	Tyr	Ser	Thr	Glu	Asn	Ile
	355					360						365			
Glu	Ile	Asn	Glu	Ser	Ser	Ile	Lys	Gln	Asp	Tyr	Thr	Gly	Asn	Glu	Gln
	370				375					380					
Glu	Leu	Arg	Leu	His	Val	Asn	Ala	Val	Asn	Lys	Pro	Glu	Asn	Asn	Ser
385				390					395					400	
Gln	Lys	Ser	Ser	Phe	Leu	Gly	Lys	Ile	Trp	Glu	Ser	Leu	Arg	Thr	Ser
			405					410						415	

Asn Asn Gln Thr Leu Glu Arg Lys Asn Val Ile Val Asn Thr Val Asp  
 420 425 430  
 Gln Asp Asn Lys Glu Ser Asp Ile His Asp Ile Pro Ala Phe Leu Arg  
 435 440 445  
 Lys Lys Arg Asp  
 450

<210> 15  
 <211> 508  
 <212> PRT  
 <213> *Caulobacter crescentus*

<400> 15  
 Met Ala Ile Ser Leu Ser Ala Pro Arg Thr Thr Glu Leu Lys Pro Arg  
 1 5 10 15  
 Ile Val Val Phe Gly Val Gly Gly Ala Gly Gly Asn Ala Val Asn Asn  
 20 25 30  
 Met Ile Glu Ala Gly Leu Glu Gly Val Glu Phe Val Val Ala Asn Thr  
 35 40 45  
 Asp Ala Gln Gln Leu Gln Phe Ala Lys Thr Asp Arg Arg Ile Gln Leu  
 50 55 60  
 Gly Val Gln Ile Thr Gln Gly Leu Gly Ala Gly Ala His Pro Glu Val  
 65 70 75 80  
 Gly Met Ser Ala Ala Glu Glu Ser Phe Pro Glu Ile Gly Glu His Leu  
 85 90 95  
 Asp Gly Ala His Met Val Phe Ile Thr Ala Gly Met Gly Gly Gly Thr  
 100 105 110  
 Gly Thr Gly Ala Ala Pro Ile Ile Ala Lys Cys Ala Arg Glu Arg Gly  
 115 120 125  
 Ile Leu Thr Val Gly Val Val Thr Lys Pro Phe His Phe Glu Gly Arg  
 130 135 140  
 His Arg Met Arg Leu Ala Asp Ser Gly Ile Gln Glu Leu Gln Arg Tyr  
 145 150 155 160  
 Val Asp Thr Leu Ile Val Ile Pro Asn Gln Asn Leu Phe Arg Val Ala  
 165 170 175  
 Asn Glu Arg Thr Thr Phe Ala Glu Ala Phe Gly Met Ala Asp Gln Val  
 180 185 190  
 Leu His Ser Gly Val Arg Ser Ile Thr Asp Leu Met Val Leu Pro Gly  
 195 200 205  
 Leu Ile Asn Leu Asp Phe Ala Asp Val Arg Thr Val Met Thr Glu Met  
 210 215 220  
 Gly Lys Ala Met Met Gly Thr Gly Glu Gly Thr Ala Glu Asp Arg Ala  
 225 230 235 240  
 Leu Met Ala Ala Gln Asn Ala Ile Ala Asn Pro Leu Leu Asp Glu Val  
 245 250 255  
 Ser Leu Lys Gly Ala Lys Ala Val Leu Val Asn Val Thr Gly Gly Met  
 260 265 270  
 Asp Met Thr Leu Leu Glu Val Asp Glu Ala Ala Asn Ala Ile Ser Asp  
 275 280 285  
 Gln Val Asp Pro Glu Ala Asn Ile Ile Phe Gly Ala Ala Phe Asp Pro  
 290 295 300  
 Ser Leu Glu Gly Val Ile Arg Val Ser Val Val Ala Thr Gly Met Asp  
 305 310 315 320  
 Gly Ala Ser Ile Ala Gln Ile Glu Pro Lys Pro Val Ser Arg Asn Ile  
 325 330 335  
 Ser Ala Ala Pro Leu Ile Ala Glu Thr Ser Arg Pro Ala Pro Gln Pro

350

<400> 16

Met 1	Thr	Gly	Ala	Leu 5	Arg	Tyr	Arg	Ala	Leu 10	Ala	Arg	Val	Ile	Glu 15	Arg
Cys	Leu	Gly	Ser 20	Arg	Ala	Leu	Gly	Glu 25	Ser	Gly	Ser	Ala	Ala 30	Ala	Val
Ser	Asn	Tyr	Val 35	Trp	Gln	Arg	Glu 40	Ala	Ser	Arg	Gly	Phe 45	Val	Leu	Gly
Thr	Arg	Leu	Leu 50	Pro	Trp	Cys 55	Pro	Leu	Gly	Ser	Arg 60	Leu	Leu	His	Ser
Pro	Ser	Gln	Thr 65	Ala	Ser 70	Val	Ile	Arg	Met	Asn 75	Thr	Gly	Ser	Phe	Ala
Pro	Lys	Pro	Asp 85	Leu	Gly	Glu	Gln	Gln 90	Pro	Asn	Thr	Leu	Thr 95	Gly	Gln
Pro	Arg	Ile	Met 100	Val	Val	Gly	Val	Gly 105	Gly	Ala	Gly	Gly 110	Asn	Ala	Val
Asn	Asn	Met 115	Ile	Ala	Ser	Ser	Leu 120	Pro	Gly	Val	Glu	Phe 125	Leu	Val	Ala
Asn	Thr 130	Asp	Ala	Gln	Ala	Leu 135	Lys	Met	Ser	Leu	Cys 140	Pro	Asn	Arg	Ile
Gln 145	Leu	Gly	Ala	Ser	Leu 150	Thr	Glu	Gly	Leu	Gly 155	Ala	Gly	Ala	Arg	Pro
Asp	Ile	Gly	Arg 165	Ala	Ala	Ala	Glu	Glu 170	Ala	Tyr	Glu	Thr 175	Leu	Lys	Arg
Glu	Phe	Arg	Gly 180	Val	His	Leu	Leu	Phe 185	Val	Thr	Ala	Gly 190	Met	Gly	Gly
Gly	Thr 195	Gly	Thr	Gly	Ala	Ala 200	Pro	Ile	Ile	Ala	Arg 205	Ala	Ala	Ala	Glu
Leu	Gly 210	Cys	Leu	Thr	Val	Ala 215	Val	Val	Thr	Lys 220	Pro	Phe	His	Phe	Glu

Gly Met Ile Arg Met Lys Thr Ala Glu Gln Gly Ile Val Glu Leu Thr  
 225 230 235 240  
 Glu His Val Asp Thr Met Leu Val Ile Pro Asn Gln Asn Leu Phe Lys  
 245 250 255  
 Val Ala Ser Pro Arg Thr Ser Phe Leu Asp Ala Phe Arg Leu Ala Asp  
 260 265 270  
 His Val Leu Tyr Ser Gly Val Arg Ser Ile Thr Asp Leu Met Thr Val  
 275 280 285  
 Pro Gly Leu Ile Asn Leu Asp Phe Ala Asp Val Arg Ser Val Val Arg  
 290 295 300  
 Glu Met Gly Arg Ala Met Met Gly Ser Gly Glu Val Glu Met Glu Ala  
 305 310 315 320  
 Gly Asn Glu Glu Arg Ala Ile Arg Ala Ser Glu Ala Ala Ile Cys Asn  
 325 330 335  
 Pro Leu Leu Asp Glu Thr Ser Leu Arg Gly Ala Arg Gly Val Leu Val  
 340 345 350  
 Asn Ile Thr Gly Gly Thr Asp Met Thr Leu Phe Glu Ile Asp Ala Ala  
 355 360 365  
 Ala Asn Arg Ile Arg Glu Gln Val Asp Pro Asp Ala Asn Ile Ile Phe  
 370 375 380  
 Gly Ser Ala Phe Asp Ala Ser Met Gln Gly Arg Leu Arg Val Ser Val  
 385 390 395 400  
 Leu Ala Thr Gly Ile Pro Ser  
 405

<210> 17

<211> 401

<212> PRT

<213> Mallomonas splendens

<400> 17

Met Arg Ile Thr Gly Ala Asn Arg Ile Leu Ser Leu Ser Arg Ile Arg  
 1 5 10 15  
 His Phe Ser Asp Gly Ala Ser Leu Asn Lys Ala Phe Leu Arg Ser Val  
 20 25 30  
 Lys Pro Gly Val Lys Pro Glu Gln Tyr Asp Ser Arg Ser Gly Asn Ser  
 35 40 45  
 Ser Gln Ala Gln Ser Thr Glu His Val Lys Asp Lys Phe Val Glu Pro  
 50 55 60  
 Gly Asn Leu Arg Phe Arg Thr Gly Glu Tyr Ile Thr Glu Phe Leu Pro  
 65 70 75 80  
 Lys Ile Cys Val Phe Gly Val Gly Gly Gly Cys Asn Ala Val Asn  
 85 90 95  
 Asn Met Ile Ala Arg Lys Leu Ser Gly Val Glu Phe Val Cys Ala Asn  
 100 105 110  
 Thr Asp Ala Gln His Leu Ser Thr Cys Leu Thr Glu Asn Lys Leu Gln  
 115 120 125  
 Leu Gly Lys Glu Ser Thr Gln Gly Leu Gly Cys Gly Ala Asn Pro Glu  
 130 135 140  
 Ser Gly Arg Arg Ala Ala Glu Glu Ser Lys Glu Glu Ile Ala Arg Tyr  
 145 150 155 160  
 Ile Ala Asp Ala Asn Met Val Phe Ile Thr Ala Gly Met Gly Gly Gly  
 165 170 175  
 Thr Gly Thr Gly Ala Ala Pro Val Val Ala Glu Val Cys Met Glu Lys  
 180 185 190  
 Asp Ile Leu Thr Val Ala Val Val Thr Lys Pro Phe Ser Phe Glu Gly



195	200	205
Lys His Arg Ala Arg Leu Ala Asn Glu Gly Ile Arg Ser Leu Glu Asp		
210	215	220
Arg Val Asp Thr Leu Ile Ile Ile Pro Asn Gln Asn Ile Phe Lys Leu		
225	230	235
Ile Asn Ala Ser Thr Ser Met Ala Asp Ala Phe Gly Leu Ala Asp Asp		240
	245	250
Ile Leu Leu Ala Gly Val Lys Ser Ile Thr Asp Leu Met Val Arg Pro		255
	260	265
Gly Leu Ile Asn Leu Asp Phe Ala Asp Val Arg Thr Val Met Ser Gly		270
	275	280
Met Gly His Ala Ile Met Gly Thr Gly Gln Ala Glu Gly Glu Asp Arg		285
	290	295
Ala Ile Arg Ala Ala Asn Asp Ala Leu Asn Asn Pro Leu Leu Gly Gly		300
305	310	315
Asp Phe Ser Val Arg Ser Ala Lys Gly Met Leu Val Asn Ile Thr Gly		320
	325	330
Gly Lys Asp Leu Thr Leu Val Glu Val Asp Ala Ala Ala Gln Arg Ile		335
	340	345
Thr Ser Glu Ile Glu Asp Glu Asp Ala Asn Val Ile Phe Gly Ser Ser		350
	355	360
Phe Asp Glu Ser Leu Gln Gly Ser Ile Arg Val Ser Ile Val Ala Thr		365
	370	375
Gly Ile Glu Ala Pro Gly Ala Ala Ala Ala Thr Ala Ala Pro Val Ile		380
385	390	395
Arg		400

<210> 18  
 <211> 483  
 <212> PRT  
 <213> Gentiana lutea

<400> 18

Met Ala Thr Ser Thr Ser Pro Cys Phe Thr Pro Tyr Asp Ile Gln Ser	
1	5
Pro Ser Arg Val Met Thr Thr Phe Gly Gly Arg Ile Ser Pro Met Lys	10
	15
	20
Met Asn Leu Phe His Glu Lys Lys Val Phe Trp Val Phe Asp Gln Lys	25
	30
	35
Gly Ser Arg Ile Tyr Pro His Phe Lys Cys Ser Thr Asn Ser His Asn	40
	45
	50
Val Asn Gln His Gln Ser Lys Asp Pro Phe Leu Asn Leu His Pro Glu	55
65	60
	65
Ile Ser Leu Leu Arg Gly Asp Gly Asn Asn Thr Leu Val Asp Ser Arg	70
	75
	80
	85
Val Asp Thr Ala Gly Ser Gly Arg Ser Val Thr Glu Ser Leu Arg Asp	90
	95
	100
Ser Ser Ser Ser Asn Asn Tyr Ser Glu Ala Lys Ile Lys Val Val Gly	105
	110
	115
Val Gly Gly Gly Gly Ser Asn Ala Val Asn Arg Met Ile Glu Ser Ala	120
	125
	130
Met Lys Gly Val Glu Phe Trp Ile Val Asn Thr Asp Val Gln Ala Ile	135
	140
145	145
	150
Lys Met Ser Pro Val Tyr Leu Glu Asn Arg Leu Gln Ile Gly Gln Glu	155
	160
	165
	170
	175

Leu Thr Arg Gly Leu Gly Ala Gly Gly Asn Pro Asp Ile Gly Met Asn  
 180 185 190  
 Ala Ala Lys Glu Ser Lys Glu Ala Ile Glu Glu Ala Val Tyr Gly Ala  
 195 200 205  
 Asp Met Val Phe Val Thr Ala Gly Met Gly Gly Gly Thr Gly Thr Gly  
 210 215 220  
 Gly Ala Pro Val Ile Ala Gly Ile Ala Lys Ser Met Gly Ile Leu Thr  
 225 230 235 240  
 Val Gly Ile Val Thr Thr Pro Phe Ser Phe Glu Gly Arg Arg Arg Ala  
 245 250 255  
 Val Gln Ala Gln Glu Gly Ile Ala Ala Leu Arg Asp Asn Val Asp Thr  
 260 265 270  
 Leu Ile Val Ile Pro Asn Asp Lys Leu Leu Thr Ala Val Ser Pro Ser  
 275 280 285  
 Thr Pro Val Thr Glu Ala Phe Asn Leu Ala Asp Asp Ile Leu Arg Gln  
 290 295 300  
 Gly Val Arg Gly Ile Ser Asp Ile Ile Thr Ile Pro Gly Leu Val Asn  
 305 310 315 320  
 Val Asp Phe Ala Asp Val Arg Ala Ile Met Ala Asn Ala Gly Ser Ser  
 325 330 335  
 Leu Met Gly Ile Gly Thr Ala Thr Gly Lys Thr Arg Ala Arg Asp Ala  
 340 345 350  
 Ala Leu Asn Ala Ile Gln Ser Pro Leu Leu Asp Ile Gly Ile Glu Arg  
 355 360 365  
 Ala Thr Gly Ile Val Trp Asn Ile Thr Gly Gly Ser Asp Leu Thr Leu  
 370 375 380  
 Phe Glu Val Asn Ala Ala Glu Val Ile Tyr Asp Leu Val Asp Pro  
 385 390 395 400  
 Ser Ala Asn Leu Ile Phe Gly Ala Val Val Asp Pro Ser Leu Cys Gly  
 405 410 415  
 Gln Val Ser Ile Thr Leu Ile Ala Thr Gly Phe Lys Arg Gln Glu Glu  
 420 425 430  
 Ser Asp Lys Arg Ser Ile Gln Ala Gly Gly Gln Leu Ala Pro Gly Asp  
 435 440 445  
 Ala Asn Gln Gly Ile Asn Arg Arg Pro Ser Ser Phe Ser Glu Ser Gly  
 450 455 460  
 Ser Val Glu Ile Pro Glu Phe Leu Arg Lys Lys Gly Arg Ser Arg Tyr  
 465 470 475 480  
 Pro Arg Ala

<210> 19  
 <211> 468  
 <212> PRT  
 <213> Nicotiana tabacum

<400> 19  
 Met Ala Thr Cys Thr Ser Ala Val Phe Met Pro Pro Asp Thr Arg Arg  
 1 5 10 15  
 Ser Arg Gly Val Leu Thr Leu Leu Gly Gly Arg Leu Cys Ala Leu Lys  
 20 25 30  
 Met Gln Asp Glu Lys Ile Gly Phe Leu Gly Val Asn Gln Lys Gly Ser  
 35 40 45  
 Ser Ser Leu Pro Gln Phe Lys Cys Ser Ser Asn Ser His Ser Val Asn  
 50 55 60  
 Gln Tyr Gln Asn Lys Asp Ser Phe Leu Asn Leu His Pro Glu Ile Ser

65					70					75				80
Leu	Leu	Arg	Gly	Glu	Glu	Ser	Ser	Ser	Gly	Asn	Val	Thr	Glu	Ser
				85					90				95	Leu
Met	Asp	Ser	Ser	Arg	Ser	Asn	Asn	Phe	Asn	Glu	Ala	Lys	Ile	Lys
			100					105					110	Val
Val	Gly	Val	Gly	Gly	Gly	Gly	Ser	Asn	Ala	Val	Asn	Arg	Met	Ile
			115				120					125		Glu
Ser	Ser	Met	Lys	Gly	Val	Glu	Phe	Trp	Ile	Val	Asn	Thr	Asp	Ile
		130				135					140			Gln
Ala	Met	Arg	Met	Ser	Pro	Val	Ala	Ala	Glu	Gln	Arg	Leu	Pro	Ile
145					150					155				Gly
Gln	Glu	Leu	Thr	Arg	Gly	Leu	Gly	Ala	Gly	Gly	Asn	Pro	Asp	Ile
			165						170				175	Gly
Met	Asn	Ala	Ala	Asn	Glu	Ser	Lys	Gln	Ala	Ile	Glu	Glu	Ala	Val
			180					185					190	Tyr
Gly	Ala	Asp	Met	Val	Phe	Val	Thr	Ala	Gly	Met	Gly	Gly	Gly	Thr
		195					200					205		Gly
Thr	Gly	Ala	Ala	Pro	Ile	Ile	Ala	Gly	Thr	Ala	Lys	Ser	Met	Gly
		210				215					220			Ile
Leu	Thr	Val	Gly	Ile	Val	Thr	Thr	Pro	Phe	Ser	Phe	Glu	Gly	Arg
225					230					235				Arg
Arg	Ala	Val	Gln	Ala	Gln	Glu	Gly	Ile	Ala	Ala	Leu	Arg	Glu	Asn
			245						250				255	Val
Asp	Thr	Leu	Ile	Val	Ile	Pro	Asn	Asp	Lys	Leu	Leu	Thr	Ala	Val
		260					265						270	Ser
Pro	Ser	Thr	Pro	Val	Thr	Glu	Ala	Phe	Asn	Leu	Ala	Asp	Asp	Ile
		275					280					285		Leu
Arg	Gln	Gly	Val	Arg	Gly	Ile	Ser	Asp	Ile	Ile	Thr	Ile	Pro	Gly
		290				295					300			Leu
Val	Asn	Val	Asp	Phe	Ala	Asp	Val	Arg	Ala	Ile	Met	Ala	Asn	Ala
305					310					315				Gly
Ser	Ser	Leu	Met	Gly	Ile	Gly	Thr	Ala	Thr	Gly	Lys	Thr	Arg	Ala
			325						330				335	Arg
Asp	Ala	Ala	Leu	Asn	Ala	Ile	Gln	Ser	Pro	Leu	Leu	Asp	Ile	Gly
			340					345				350		Ile
Glu	Arg	Ala	Thr	Gly	Ile	Val	Trp	Asn	Ile	Thr	Gly	Gly	Ser	Asp
		355					360					365		Leu
Thr	Leu	Phe	Glu	Val	Asn	Ala	Ala	Glu	Val	Ile	Tyr	Asp	Leu	Val
		370				375				380				
Asp	Pro	Ser	Ala	Asn	Leu	Ile	Phe	Gly	Ala	Val	Ile	Asp	Pro	Ser
385					390					395				Ile
Ser	Gly	Gln	Val	Ser	Ile	Thr	Leu	Ile	Ala	Thr	Gly	Phe	Lys	Arg
			405						410				415	Gln
Glu	Glu	Ser	Asp	Gly	Arg	Pro	Leu	Gln	Gly	Asn	Gln	Leu	Thr	Gln
			420					425				430		Gly
Asp	Val	Ser	Leu	Gly	Asn	Asn	Arg	Arg	Pro	Ala	Ser	Phe	Leu	Glu
		435				440					445			Gly
Gly	Ser	Val	Glu	Ile	Pro	Glu	Phe	Leu	Arg	Lys	Lys	Gly	Arg	Ser
		450				455					460			Arg
Tyr	Pro	Arg	Ala											
465														

&lt;210&gt; 20

&lt;211&gt; 397

&lt;212&gt; PRT

&lt;213&gt; Arabidopsis thaliana

&lt;400&gt; 20

Met Leu Arg Gly Glu Gly Thr Ser Thr Ile Val Asn Pro Arg Lys Glu  
 1 5 10 15  
 Thr Ser Ser Gly Pro Val Val Glu Asp Phe Glu Glu Pro Ser Ala Pro  
 20 25 30  
 Ser Asn Tyr Asn Glu Ala Arg Ile Lys Val Ile Gly Val Gly Gly Gly  
 35 40 45  
 Gly Ser Asn Ala Val Asn Arg Met Ile Glu Ser Glu Met Ser Gly Val  
 50 55 60  
 Glu Phe Trp Ile Val Asn Thr Asp Ile Gln Ala Met Arg Met Ser Pro  
 65 70 75 80  
 Val Leu Pro Asp Asn Arg Leu Gln Ile Gly Lys Glu Leu Thr Arg Gly  
 85 90 95  
 Leu Gly Ala Gly Gly Asn Pro Glu Ile Gly Met Asn Ala Ala Arg Glu  
 100 105 110  
 Ser Lys Glu Val Ile Glu Glu Ala Leu Tyr Gly Ser Asp Met Val Phe  
 115 120 125  
 Val Thr Ala Gly Met Gly Gly Gly Thr Gly Thr Gly Ala Ala Pro Val  
 130 135 140  
 Ile Ala Gly Ile Ala Lys Ala Met Gly Ile Leu Thr Val Gly Ile Ala  
 145 150 155 160  
 Thr Thr Pro Phe Ser Phe Glu Gly Arg Arg Arg Thr Val Gln Ala Gln  
 165 170 175  
 Glu Gly Leu Ala Ser Leu Arg Asp Asn Val Asp Thr Leu Ile Val Ile  
 180 185 190  
 Pro Asn Asp Lys Leu Leu Thr Ala Val Ser Gln Ser Thr Pro Val Thr  
 195 200 205  
 Glu Ala Phe Asn Leu Ala Asp Ile Leu Arg Gln Gly Val Arg Gly  
 210 215 220  
 Ile Ser Asp Ile Ile Thr Ile Pro Gly Leu Val Asn Val Asp Phe Ala  
 225 230 235 240  
 Asp Val Arg Ala Ile Met Ala Asn Ala Gly Ser Ser Leu Met Gly Ile  
 245 250 255  
 Gly Thr Ala Thr Gly Lys Ser Arg Ala Arg Asp Ala Ala Leu Asn Ala  
 260 265 270  
 Ile Gln Ser Pro Leu Leu Asp Ile Gly Ile Glu Arg Ala Thr Gly Ile  
 275 280 285  
 Val Trp Asn Ile Thr Gly Gly Ser Asp Leu Thr Leu Phe Glu Val Asn  
 290 295 300  
 Ala Ala Ala Glu Val Ile Tyr Asp Leu Val Asp Pro Thr Ala Asn Leu  
 305 310 315 320  
 Ile Phe Gly Ala Val Val Asp Pro Ala Leu Ser Gly Gln Val Ser Ile  
 325 330 335  
 Thr Leu Ile Ala Thr Gly Phe Lys Arg Gln Glu Glu Gly Glu Gly Arg  
 340 345 350  
 Thr Val Gln Met Val Gln Ala Asp Ala Ala Ser Val Gly Ala Thr Arg  
 355 360 365  
 Arg Pro Ser Ser Ser Phe Arg Glu Ser Gly Ser Val Glu Ile Pro Glu  
 370 375 380  
 Phe Leu Lys Lys Lys Gly Ser Ser Arg Tyr Pro Arg Val  
 385 390 395

&lt;210&gt; 21

&lt;211&gt; 458

&lt;212&gt; PRT

## &lt;213&gt; Physcomitrella patens

&lt;400&gt; 21

Met Ala Leu Phe Ser Gly Cys Ser Gly Trp Ala Gly Leu Lys Val Ser  
 1 5 10 15  
 Ser Arg Val Gly Gly Glu Ala Cys Arg Thr Pro Pro Val Val His Cys  
 20 25 30  
 Ser Met His Ser Arg Ser Ser Val Arg Ala Leu Arg Arg Ile Asp Arg  
 35 40 45  
 Ala Leu Ser Asn Gly Gly Leu Cys Asn Phe Gly Glu Arg Asp Leu Leu  
 50 55 60  
 Ala Leu Glu Ala Lys Ser Pro Leu Arg Cys Glu Pro Pro Ser Ser Val  
 65 70 75 80  
 Met Arg Asn Pro Val Met Ala Phe Glu Gly Ser Gly Asp Asp Thr Gly  
 85 90 95  
 Ser Tyr Asn Glu Ala Lys Ile Lys Val Ile Gly Val Gly Gly Gly Gly  
 100 105 110  
 Ser Asn Ala Val Asn Arg Met Leu Glu Ser Glu Met Gln Gly Val Glu  
 115 120 125  
 Phe Trp Ile Val Asn Thr Asp Ala Gln Ala Met Ala Leu Ser Pro Val  
 130 135 140  
 Pro Ala Gln Asn Arg Leu Gln Ile Gly Gln Lys Leu Thr Arg Gly Leu  
 145 150 155 160  
 Gly Ala Gly Gly Asn Pro Glu Ile Gly Cys Ser Ala Ala Glu Glu Ser  
 165 170 175  
 Lys Ala Met Val Glu Glu Ala Leu Arg Gly Ala Asp Met Val Phe Val  
 180 185 190  
 Thr Ala Gly Met Gly Gly Gly Thr Gly Ser Gly Ala Ala Pro Ile Ile  
 195 200 205  
 Ala Gly Val Ala Lys Gln Leu Gly Ile Leu Thr Val Gly Ile Val Thr  
 210 215 220  
 Thr Pro Phe Ala Phe Glu Gly Arg Arg Arg Ala Val Gln Ala His Glu  
 225 230 235 240  
 Gly Ile Ala Ala Leu Lys Asn Asn Val Asp Thr Leu Ile Thr Ile Pro  
 245 250 255  
 Asn Asn Lys Leu Leu Thr Ala Val Ala Gln Ser Thr Pro Val Thr Glu  
 260 265 270  
 Ala Phe Asn Leu Ala Asp Asp Ile Leu Arg Gln Gly Val Arg Gly Ile  
 275 280 285  
 Ser Asp Ile Ile Thr Val Pro Gly Leu Val Asn Val Asp Phe Ala Asp  
 290 295 300  
 Val Arg Ala Ile Met Ala Asn Ala Gly Ser Ser Leu Met Gly Ile Gly  
 305 310 315 320  
 Thr Ala Thr Gly Lys Ser Arg Ala Arg Glu Ala Ala Leu Ser Ala Ile  
 325 330 335  
 Gln Ser Pro Leu Leu Asp Val Gly Ile Glu Arg Ala Thr Gly Ile Val  
 340 345 350  
 Trp Asn Ile Thr Gly Gly Ser Asp Met Thr Leu Phe Glu Val Asn Ala  
 355 360 365  
 Ala Ala Glu Val Ile Tyr Asp Leu Val Asp Pro Asn Ala Asn Leu Ile  
 370 375 380  
 Phe Gly Ala Val Val Asp Glu Ala Leu His Gly Gln Val Ser Ile Thr  
 385 390 395 400  
 Leu Ile Ala Thr Gly Phe Ser Ser Gln Asp Glu Pro Asp Ala Arg Ser  
 405 410 415  
 Met Gln Asn Val Ser Arg Ile Leu Asp Gly Gln Ala Gly Arg Ser Pro  
 420 425 430

Thr Gly Leu Ser Gln Gly Ser Asn Gly Ser Ala Ile Asn Ile Pro Ser  
 435 440 445

Phe Leu Arg Lys Arg Gly Gln Thr Arg His  
 450 455

<210> 22

<211> 464

<212> PRT

<213> Physcomitrella patens

<400> 22

Met Ala Leu Leu Gly Ser Arg Ser Gly Leu Val Gly Leu Arg Val Ser  
 1 5 10 15  
 Ser Arg Val Gly Gly Glu Ser Ser Arg Ile Val Pro Ala Thr Arg Asp  
 20 25 30  
 Arg Phe Cys Val His Leu Arg Pro Ser Thr Arg Ala His Arg Arg Leu  
 35 40 45  
 Asp Arg Thr Val Gly Asn Glu Ser Leu Cys Thr Pro Arg Glu Arg Asp  
 50 55 60  
 Leu Ala Ala Glu Pro Lys Phe Leu His Thr Gly Trp Glu Ser Ser Ser  
 65 70 75 80  
 Ser Ser Ser Ser Ser Ser Cys Glu Thr Gly Ile Pro Val Thr Ala Phe  
 85 90 95  
 Gly Gly Asn Gly Asp Glu Tyr Glu Ser Ser Asn Glu Ala Lys Ile Lys  
 100 105 110  
 Val Ile Gly Val Gly Gly Gly Gly Ser Asn Ala Val Asn Arg Met Leu  
 115 120 125  
 Glu Ser Glu Met Gln Gly Val Glu Phe Trp Ile Val Asn Thr Asp Ala  
 130 135 140  
 Gln Ala Met Ala Leu Ser Pro Val Pro Ala Gln Asn Arg Leu Gln Ile  
 145 150 155 160  
 Gly Gln Lys Leu Thr Arg Gly Leu Gly Ala Gly Gly Asn Pro Glu Ile  
 165 170 175  
 Gly Cys Ser Ala Ala Glu Glu Ser Lys Ala Met Val Glu Glu Ala Leu  
 180 185 190  
 Arg Gly Ala Asp Met Val Phe Val Thr Ala Gly Met Gly Gly Gly Thr  
 195 200 205  
 Gly Ser Gly Ala Ala Pro Ile Ile Ala Gly Val Ala Lys Gln Leu Gly  
 210 215 220  
 Ile Leu Thr Val Gly Ile Val Thr Thr Pro Phe Ala Phe Glu Gly Arg  
 225 230 235 240  
 Arg Arg Ser Val Gln Ala His Glu Gly Ile Ala Ala Leu Lys Asn Asn  
 245 250 255  
 Val Asp Thr Leu Ile Thr Ile Pro Asn Asn Lys Leu Leu Thr Ala Val  
 260 265 270  
 Ala Gln Ser Thr Pro Val Thr Glu Ala Phe Asn Leu Ala Asp Asp Ile  
 275 280 285  
 Leu Arg Gln Gly Val Arg Gly Ile Ser Asp Ile Ile Thr Val Pro Gly  
 290 295 300  
 Leu Val Asn Val Asp Phe Ala Asp Val Arg Ala Ile Met Ala Asn Ala  
 305 310 315 320  
 Gly Ser Ser Leu Met Gly Ile Gly Thr Ala Thr Gly Lys Ser Lys Ala  
 325 330 335  
 Arg Glu Ala Ala Leu Ser Ala Ile Gln Ser Pro Leu Leu Asp Val Gly  
 340 345 350  
 Ile Glu Arg Ala Thr Gly Ile Val Trp Asn Ile Thr Gly Gly Ser Asp

355                      360                      365  
 Met Thr Leu Phe Glu Val Asn Ala Ala Ala Glu Val Ile Tyr Asp Leu  
 370                      375                      380  
 Val Asp Pro Asn Ala Asn Leu Ile Phe Gly Ala Val Val Asp Glu Ala  
 385                      390                      395                      400  
 Leu His Asp Gln Ile Ser Ile Thr Leu Ile Ala Thr Gly Phe Ser Ser  
                     405                      410                      415  
 Gln Asp Asp Pro Asp Ala Arg Ser Met Gln Tyr Ala Ser Arg Val Leu  
                     420                      425                      430  
 Glu Gly Gln Ala Gly Arg Ser Ser Met Ala Ser Ser Arg Gly Gly Asn  
                     435                      440                      445  
 Ser Ser Thr Ile Asn Ile Pro Asn Phe Leu Arg Lys Arg Gly Gln Arg  
                     450                      455                      460

<210> 23  
 <211> 398  
 <212> PRT  
 <213> Guillardia theta

<400> 23  
 Met Tyr Phe Ile Gln Asn Ile Lys Cys Tyr Gln Phe Asp Lys Lys Asn  
 1                      5                      10                      15  
 Ile Phe Lys Thr Ile Asn Lys Phe Arg Cys Arg Ser Gln Ser Leu Ile  
                     20                      25                      30  
 Lys Ser Asn Ile Ser Glu Asp Ser Phe Phe Asn Gln Glu Ile Ser Ser  
                     35                      40                      45  
 Ser Pro Cys Val Ile Lys Val Ile Gly Val Gly Gly Gly Gly Asn  
                     50                      55                      60  
 Ala Val Asn Arg Met Val Gly Gly Val Glu Gly Val Glu Phe Trp Ser  
 65                      70                      75                      80  
 Ile Asn Thr Asp Ala Gln Ala Leu Ser Arg Ser Leu Ala Pro Asn Thr  
                     85                      90                      95  
 Cys Asn Ile Gly Ala Lys Leu Thr Arg Gly Leu Gly Ala Gly Gly Asn  
                     100                      105                      110  
 Pro Glu Ile Gly Arg Lys Ala Ala Glu Glu Ser Arg Asp Leu Ile Ala  
                     115                      120                      125  
 Glu Ala Val Ser Ala Gly Asp Leu Val Phe Val Thr Ala Gly Met Gly  
                     130                      135                      140  
 Gly Gly Thr Gly Ser Gly Ala Ala Pro Ile Val Ala Glu Val Ala Lys  
 145                      150                      155                      160  
 Glu Met Gly Cys Leu Thr Val Gly Val Val Thr Lys Pro Phe Ala Phe  
                     165                      170                      175  
 Glu Gly Lys Arg Arg Met Gln Gln Ala Asn Asp Ala Ile Leu Asn Leu  
                     180                      185                      190  
 Arg Asn Lys Val Asp Thr Leu Ile Val Val Ser Asn Asp Lys Leu Leu  
                     195                      200                      205  
 Gln Ile Val Pro Asp Asn Thr Pro Leu Gln Asp Ala Phe Ser Val Ala  
                     210                      215                      220  
 Asp Asp Ile Leu Arg Gln Gly Val Val Gly Ile Ser Glu Ile Ile Val  
 225                      230                      235                      240  
 Arg Pro Gly Leu Ile Asn Val Asp Phe Ala Asp Val Arg Ser Val Met  
                     245                      250                      255  
 Ala Asp Ala Gly Ser Ala Leu Met Gly Ile Gly Thr Gly Ser Gly Lys  
                     260                      265                      270  
 Thr Arg Ala Gln Asp Ala Ala Val Ala Ala Ile Ser Ser Pro Leu Leu  
                     275                      280                      285

Asp Phe Pro Ile Glu Lys Ala Arg Gly Ile Val Phe Asn Ile Thr Gly  
 290 295 300  
 Gly Gln Asp Met Thr Leu His Glu Ile Asn Ser Ala Ala Glu Val Ile  
 305 310 315 320  
 Tyr Glu Ala Val Asp Ser Asn Ala Asn Ile Ile Phe Gly Ala Leu Val  
 325 330 335  
 Asp Asp Asn Met Glu Asn Glu Ile Ser Ile Thr Val Val Ala Thr Gly  
 340 345 350  
 Phe Thr Gln Pro Asn Asp Ser Lys Phe Phe Ser Thr Lys Ser Ala Val  
 355 360 365  
 Asp Phe Ser Lys Ile Tyr Asp Asn Lys Lys Thr Lys Ser Thr Tyr Lys  
 370 375 380  
 Glu Ser Arg Ala Glu Phe Ser Asp Leu Trp Lys Lys Phe Tyr  
 385 390 395

<210> 24  
 <211> 368  
 <212> PRT  
 <213> Mallomonas splendens

<400> 24  
 Gly Val Glu Leu Trp Val Val Asn Thr Asp Ala Gln Ala Leu Ser Arg  
 1 5 10 15  
 Ser Ser Ala Lys Arg Arg Leu Asn Ile Gly Lys Val Leu Ser Arg Gly  
 20 25 30  
 Leu Gly Ala Gly Gly Asn Pro Ala Ile Gly Ala Lys Ala Ala Glu Glu  
 35 40 45  
 Ser Arg Glu Glu Ile Met Ala Val Val Lys Asn Ala Asp Leu Val Phe  
 50 55 60  
 Val Thr Ala Gly Met Gly Gly Thr Gly Ser Gly Ala Ala Pro Val  
 65 70 75 80  
 Val Ala Glu Cys Ala Lys Glu Ala Gly Ala Leu Thr Val Gly Val Val  
 85 90 95  
 Thr Lys Pro Phe Gly Phe Glu Gly Arg Lys Arg Met Gln Gln Ala Arg  
 100 105 110  
 Asn Ala Ile Leu Glu Met Lys Asp Lys Val Asp Thr Leu Ile Val Val  
 115 120 125  
 Ser Asn Asp Lys Leu Leu Lys Ile Val Pro Asp Asn Thr Pro Leu Thr  
 130 135 140  
 Glu Ala Phe Leu Val Ala Asp Asp Ile Leu Arg Gln Gly Val Val Gly  
 145 150 155 160  
 Ile Thr Glu Ile Ile Val Lys Pro Gly Leu Val Asn Val Asp Phe Ala  
 165 170 175  
 Asp Val Arg Thr Ile Met Gly Asn Ala Gly Thr Ala Leu Met Gly Ile  
 180 185 190  
 Gly His Gly Lys Gly Lys Asn Arg Ala Lys Asp Ala Ala Leu Ser Ala  
 195 200 205  
 Ile Ser Ser Pro Leu Leu Asp Phe Pro Ile Thr Arg Ala Lys Gly Ile  
 210 215 220  
 Val Phe Asn Ile Val Gly Gly Ser Asp Met Ser Leu Gln Glu Ile Asn  
 225 230 235 240  
 Ala Ala Ala Glu Val Ile Tyr Glu Asn Val Asp Gln Asp Ala Asn Ile  
 245 250 255  
 Ile Phe Gly Ala Met Val Asp Asp Lys Met Thr Ser Gly Glu Val Ser  
 260 265 270  
 Ile Thr Val Leu Ala Thr Gly Phe Ser Thr Asp Tyr Phe Ser Asn Asp



275	280	285
Gly Ser Gly Leu Glu Asn Leu Pro Pro Asn Arg Leu Ser Pro Pro Lys		
290	295	300
Thr Val Gly Ser Ala Lys Ser Tyr Ser Glu Tyr Glu Pro Pro Ser Thr		
305	310	315
Pro Lys Ala Glu Glu Arg Asp Ser Glu Tyr Leu Ser Ala Asp Asp Leu		
	325	330
Thr Asp Glu Ser Lys Glu Arg Asp Gln Asp Gly Lys Lys Asp Glu Glu		
	340	345
Lys Pro Lys Gly Gly Gly Phe Arg Gly Phe Ile Lys Arg Leu Phe Ser		
355	360	365

<210> 25  
 <211> 428  
 <212> PRT  
 <213> Anabaena PCC7120

<400> 25

Met Thr Leu Asp Asn Asn Gln Glu Leu Thr Tyr Arg Asn Ser Gln Ser		
1	5	10
Leu Gly Gln Pro Gly Phe Ser Leu Ala Val Asn Ser Ser Asn Pro Phe		
	20	25
Asn His Ser Gly Leu Asn Phe Gly Gln Asn Asn Asp Ser Lys Lys Ile		
	35	40
Ser Val Glu Asn Asn Arg Ile Gly Glu Ile Val Pro Gly Arg Val Ala		
	50	55
Asn Ile Lys Val Ile Gly Val Gly Gly Gly Gly Asn Ala Val Asn		
65	70	75
Arg Met Ile Glu Ser Asp Val Ser Gly Val Glu Phe Trp Ser Ile Asn		
	85	90
Thr Asp Ala Gln Ala Leu Thr Leu Ala Gly Ala Pro Ser Arg Leu Gln		
	100	105
Ile Gly Gln Lys Leu Thr Arg Gly Leu Gly Ala Gly Gly Asn Pro Ala		
	115	120
Ile Gly Gln Lys Ala Ala Glu Glu Ser Arg Asp Glu Ile Ala Thr Ala		
	130	135
Leu Glu Gly Ala Asp Leu Val Phe Ile Thr Ala Gly Met Gly Gly Gly		
145	150	155
Thr Gly Thr Gly Ala Ala Pro Ile Val Ala Glu Val Ala Lys Glu Met		
	165	170
Gly Ala Leu Thr Val Gly Val Val Thr Arg Pro Phe Val Phe Glu Gly		
	180	185
Arg Arg Arg Thr Ser Gln Ala Glu Gln Gly Ile Glu Gly Leu Lys Ser		
	195	200
Arg Val Asp Thr Leu Ile Ile Ile Pro Asn Asn Lys Leu Leu Glu Val		
	210	215
Ile Pro Glu Gln Thr Pro Val Gln Glu Ala Phe Arg Tyr Ala Asp Asp		
225	230	235
Val Leu Arg Gln Gly Val Gln Gly Ile Ser Asp Ile Ile Thr Ile Pro		
	245	250
Gly Leu Val Asn Val Asp Phe Ala Asp Val Arg Ala Val Met Ala Asp		
	260	265
Ala Gly Ser Ala Leu Met Gly Ile Gly Val Ser Ser Gly Lys Ser Arg		
	275	280
Ala Arg Glu Ala Ala Ile Ala Ala Ile Ser Ser Pro Leu Leu Glu Cys		
290	295	300

Ser Ile Glu Gly Ala Arg Gly Val Val Phe Asn Ile Thr Gly Gly Ser  
 305 310 315 320  
 Asp Leu Thr Leu His Glu Val Asn Ala Ala Ala Glu Thr Ile Tyr Glu  
 325 330 335  
 Val Val Asp Pro Asn Ala Asn Ile Ile Phe Gly Ala Val Ile Asp Asp  
 340 345 350  
 Arg Leu Gln Gly Glu Val Arg Ile Thr Val Ile Ala Thr Gly Phe Thr  
 355 360 365  
 Gly Glu Ile Gln Ala Ala Pro Gln Gln Asn Ala Ala Asn Ala Arg Val  
 370 375 380  
 Val Ser Ala Pro Pro Lys Arg Thr Pro Thr Gln Thr Pro Leu Thr Asn  
 385 390 395 400  
 Ser Pro Ala Pro Thr Pro Glu Pro Lys Glu Lys Ser Gly Leu Asp Ile  
 405 410 415  
 Pro Asp Phe Leu Gln Arg Arg Arg Pro Pro Lys Asn  
 420 425

<210> 26  
 <211> 430  
 <212> PRT  
 <213> Synechocystis PCC6803

<400> 26  
 Met Thr Leu Asn Asn Asp Leu Pro Leu Asn Asn Ile Gly Phe Thr Gly  
 1 5 10 15  
 Ser Gly Leu Asn Asp Gly Thr Glu Gly Leu Asp Asp Leu Phe Ser Ser  
 20 25 30  
 Ser Ile Val Asp Asn Glu Pro Leu Glu Ala Leu Val Glu Thr Pro Thr  
 35 40 45  
 Phe Ala Ser Pro Ser Pro Asn Leu Lys Arg Asp Gln Ile Val Pro Ser  
 50 55 60  
 Asn Ile Ala Lys Ile Lys Val Ile Gly Val Gly Gly Gly Gly Cys Asn  
 65 70 75 80  
 Ala Val Asn Arg Met Ile Ala Ser Gly Val Thr Gly Ile Asp Phe Trp  
 85 90 95  
 Ala Ile Asn Thr Asp Ser Gln Ala Leu Thr Asn Thr Asn Ala Pro Asp  
 100 105 110  
 Cys Ile Gln Ile Gly Gln Lys Leu Thr Arg Gly Leu Gly Ala Gly Gly  
 115 120 125  
 Asn Pro Ala Ile Gly Gln Lys Ala Ala Glu Glu Ser Arg Asp Glu Ile  
 130 135 140  
 Ala Arg Ser Leu Glu Gly Thr Asp Leu Val Phe Ile Thr Ala Gly Met  
 145 150 155 160  
 Gly Gly Gly Thr Gly Thr Gly Ala Ala Pro Ile Val Ala Glu Val Ala  
 165 170 175  
 Lys Glu Met Gly Cys Leu Thr Val Gly Ile Val Thr Arg Pro Phe Thr  
 180 185 190  
 Phe Glu Gly Arg Arg Arg Ala Lys Gln Ala Glu Glu Gly Ile Asn Ala  
 195 200 205  
 Leu Gln Ser Arg Val Asp Thr Leu Ile Val Ile Pro Asn Asn Gln Leu  
 210 215 220  
 Leu Ser Val Ile Pro Ala Glu Thr Pro Leu Gln Glu Ala Phe Arg Val  
 225 230 235 240  
 Ala Asp Asp Ile Leu Arg Gln Gly Val Gln Gly Ile Ser Asp Ile Ile  
 245 250 255  
 Ile Ile Pro Gly Leu Val Asn Val Asp Phe Ala Asp Val Arg Ala Val

260	265	270
Met Ala Asp Ala Gly Ser Ala Leu	Met Gly Ile Gly Val Gly Ser Gly	
275	280	285
Lys Ser Arg Ala Lys Glu Ala Ala	Thr Ala Ala Ile Ser Ser Pro Leu	
290	295	300
Leu Glu Ser Ser Ile Gln Gly Ala Lys	Gly Val Val Phe Asn Val Thr	
305	310	315
Gly Gly Thr Asp Leu Thr Leu His Glu	Val Asn Val Ala Ala Glu Ile	
325	330	335
Ile Tyr Glu Val Val Asp Ala Asp Ala	Asn Ile Ile Phe Gly Ala Val	
340	345	350
Ile Asp Asp Arg Leu Gln Gly Glu Met	Arg Ile Thr Val Ile Ala Thr	
355	360	365
Gly Phe Asn Gly Glu Lys Glu Lys Pro	Gln Ala Lys Thr Ser Ser Lys	
370	375	380
Pro Val Leu Ser Gly Pro Pro Ala Gly	Val Glu Thr Val Pro Ser Thr	
385	390	395
Thr Thr Pro Glu Asp Pro Leu Gly Glu	Ile Pro Met Ala Pro Glu Leu	
405	410	415
Asp Ile Pro Asp Phe Leu Gln Lys Arg	Arg Phe Pro Arg Arg	
420	425	430

&lt;210&gt; 27

&lt;211&gt; 433

&lt;212&gt; PRT

&lt;213&gt; Arabidopsis thaliana

&lt;400&gt; 27

Met Ala Ile Ile Pro Leu Ala Gln Leu	Asn Glu Leu Thr Ile Ser Ser
1	5 10 15
Ser Ser Ser Ser Phe Leu Thr Lys Ser	Ile Ser Ser His Ser Leu His
20	25 30
Ser Ser Cys Ile Cys Ala Ser Ser Arg	Ile Ser Gln Phe Arg Gly Gly
35	40 45
Phe Ser Lys Arg Arg Ser Asp Ser Thr	Arg Ser Lys Ser Met Arg Leu
50	55 60
Arg Cys Ser Phe Ser Pro Met Glu Ser	Ala Arg Ile Lys Val Ile Gly
65	70 75 80
Val Gly Gly Gly Gly Asn Asn Ala Val	Asn Arg Met Ile Ser Ser Gly
85	90 95
Leu Gln Ser Val Asp Phe Tyr Ala Ile	Asn Thr Asp Ser Gln Ala Leu
100	105 110
Leu Gln Phe Ser Ala Glu Asn Pro Leu	Gln Ile Gly Glu Leu Leu Thr
115	120 125
Arg Gly Leu Gly Thr Gly Gly Asn Pro	Leu Leu Gly Glu Gln Ala Ala
130	135 140
Glu Glu Ser Lys Asp Ala Ile Ala Asn	Ala Leu Lys Gly Ser Asp Leu
145	150 155 160
Val Phe Ile Thr Ala Gly Met Gly Gly	Gly Thr Gly Ser Gly Ala Ala
165	170 175
Pro Val Val Ala Gln Ile Ser Lys Asp	Ala Gly Tyr Leu Thr Val Gly
180	185 190
Val Val Thr Tyr Pro Phe Ser Phe Glu	Gly Arg Lys Arg Ser Leu Gln
195	200 205
Ala Leu Glu Ala Ile Glu Lys Leu Gln	Lys Asn Val Asp Thr Leu Ile
210	215 220

Val Ile Pro Asn Asp Arg Leu Leu Asp Ile Ala Asp Glu Gln Thr Pro  
 225 230 235 240  
 Leu Gln Asp Ala Phe Leu Leu Ala Asp Asp Val Leu Arg Gln Gly Val  
 245 250 255  
 Gln Gly Ile Ser Asp Ile Ile Thr Ile Pro Gly Leu Val Asn Val Asp  
 260 265 270  
 Phe Ala Asp Val Lys Ala Val Met Lys Asp Ser Gly Thr Ala Met Leu  
 275 280 285  
 Gly Val Gly Val Ser Ser Ser Lys Asn Arg Ala Glu Glu Ala Ala Glu  
 290 295 300  
 Gln Ala Thr Leu Ala Pro Leu Ile Gly Ser Ser Ile Gln Ser Ala Thr  
 305 310 315 320  
 Gly Val Val Tyr Asn Ile Thr Gly Gly Lys Asp Ile Thr Leu Gln Glu  
 325 330 335  
 Val Asn Arg Val Ser Gln Val Val Thr Ser Leu Ala Asp Pro Ser Ala  
 340 345 350  
 Asn Ile Ile Phe Gly Ala Val Val Asp Asp Arg Tyr Thr Gly Glu Ile  
 355 360 365  
 His Val Thr Ile Ile Ala Thr Gly Phe Ser Gln Ser Phe Gln Lys Thr  
 370 375 380  
 Leu Leu Thr Asp Pro Arg Ala Ala Lys Leu Leu Asp Lys Met Gly Ser  
 385 390 395 400  
 Ser Gly Gln Gln Glu Asn Lys Gly Met Ser Leu Pro His Gln Lys Gln  
 405 410 415  
 Ser Pro Ser Thr Ile Ser Thr Lys Ser Ser Ser Pro Arg Arg Leu Phe  
 420 425 430  
 Phe

<210> 28

<211> 423

<212> PRT

<213> Pisum sativum

<400> 28

Met Ala Thr Leu Leu Pro Ser Thr Ile Ser Asn Pro Asn Lys Leu Thr  
 1 5 10 15  
 Ser Tyr Ser Ser Leu Phe His Asn Ala Ser Leu Ser Thr Ser Pro Ser  
 20 25 30  
 Ser Leu Thr Thr Thr Ser Val Ser Ile Tyr Pro Lys Thr Gln Arg Phe  
 35 40 45  
 Gly Arg Arg Phe Gly Ser Val Arg Cys Ser Leu Ala Tyr Val Asp Asn  
 50 55 60  
 Ala Lys Ile Lys Val Val Gly Ile Gly Gly Gly Asn Asn Ala Val  
 65 70 75 80  
 Asn Arg Met Ile Gly Ser Gly Leu Gln Gly Val Asp Phe Tyr Ala Ile  
 85 90 95  
 Asn Thr Asp Ala Gln Ala Leu Leu His Ser Ala Ala Glu Asn Pro Ile  
 100 105 110  
 Lys Ile Gly Glu Leu Leu Thr Arg Gly Leu Gly Thr Gly Gly Asn Pro  
 115 120 125  
 Leu Leu Gly Glu Gln Ala Ala Glu Glu Ser Lys Glu Ala Ile Ala Asn  
 130 135 140  
 Ala Leu Lys Gly Ser Asp Leu Val Phe Ile Thr Ala Gly Met Gly Gly  
 145 150 155 160  
 Gly Thr Gly Ser Gly Ala Ala Pro Val Val Ala Gln Ile Ser Lys Glu

				165						170					175				
Ala	Gly	Tyr	Leu	Thr	Val	Gly	Val	Val	Thr	Tyr	Pro	Phe	Ser	Phe	Glu				
			180					185					190						
Gly	Arg	Lys	Arg	Ser	Leu	Gln	Ala	Leu	Glu	Ala	Ile	Glu	Lys	Leu	Gln				
		195					200					205							
Lys	Asn	Val	Asp	Thr	Leu	Ile	Val	Ile	Pro	Asn	Asp	Arg	Leu	Leu	Asp				
	210					215					220								
Ile	Ala	Asp	Glu	Gln	Met	Pro	Leu	Gln	Asp	Ala	Phe	Arg	Leu	Ala	Asp				
225				230					235						240				
Asp	Val	Leu	Arg	Gln	Gly	Val	Gln	Gly	Ile	Ser	Asp	Ile	Ile	Thr	Ile				
			245					250						255					
Pro	Gly	Leu	Val	Asn	Val	Asp	Phe	Ala	Asp	Val	Lys	Ala	Val	Met	Lys				
		260					265						270						
Asp	Ser	Gly	Thr	Ala	Met	Leu	Gly	Val	Gly	Val	Ser	Ser	Gly	Lys	Asn				
	275					280						285							
Arg	Ala	Glu	Glu	Ala	Ala	Glu	Gln	Ala	Thr	Leu	Ala	Pro	Leu	Ile	Gly				
	290				295						300								
Ser	Ser	Ile	Gln	Ser	Ala	Thr	Gly	Val	Val	Tyr	Asn	Ile	Thr	Gly	Gly				
305				310					315					320					
Lys	Asp	Ile	Thr	Leu	Gln	Glu	Val	Asn	Arg	Val	Ser	Gln	Val	Val	Thr				
			325					330					335						
Ser	Leu	Ala	Asp	Pro	Ser	Ala	Asn	Ile	Ile	Phe	Gly	Ala	Val	Val	Asp				
	340					345						350							
Asp	Arg	Tyr	Thr	Gly	Glu	Ile	His	Val	Thr	Ile	Ile	Ala	Thr	Gly	Phe				
	355					360					365								
Ser	Gln	Ser	Phe	Gln	Lys	Lys	Leu	Leu	Thr	Asp	Pro	Arg	Ala	Ala	Lys				
	370				375						380								
Leu	Leu	Asp	Lys	Val	Ala	Glu	Gly	Lys	Glu	Ser	Lys	Thr	Val	Pro	Pro				
385			390						395					400					
Pro	Leu	Lys	Ser	Ser	Asn	Phe	Ser	Ser	Lys	Val	Glu	Ser	Arg	Pro	Pro				
			405					410					415						
Pro	Pro	Arg	Lys	Leu	Phe	Phe													
			420																

&lt;210&gt; 29

&lt;211&gt; 413

&lt;212&gt; PRT

&lt;213&gt; Nicotiana tabacum

&lt;400&gt; 29

Met	Ala	Thr	Ile	Ser	Asn	Pro	Ala	Glu	Ile	Ala	Ala	Ser	Ser	Pro	Ser				
1				5					10					15					
Phe	Ala	Phe	Tyr	His	Ser	Ser	Phe	Ile	Pro	Lys	Gln	Cys	Cys	Phe	Thr				
		20					25					30							
Lys	Ala	Arg	Arg	Lys	Ser	Leu	Cys	Lys	Pro	Gln	Arg	Phe	Ser	Ile	Ser				
	35					40					45								
Ser	Ser	Phe	Thr	Pro	Phe	Asp	Ser	Ala	Lys	Ile	Lys	Val	Ile	Gly	Val				
	50				55						60								
Gly	Gly	Gly	Gly	Asn	Asn	Ala	Val	Asn	Arg	Met	Ile	Gly	Ser	Gly	Leu				
65				70					75					80					
Gln	Gly	Val	Asp	Phe	Tyr	Ala	Ile	Asn	Thr	Asp	Ala	Gln	Ala	Leu	Leu				
			85				90					95							
Gln	Ser	Ala	Ala	Glu	Asn	Pro	Leu	Gln	Ile	Gly	Glu	Leu	Leu	Thr	Arg				
		100					105						110						
Gly	Leu	Gly	Thr	Gly	Gly	Asn	Pro	Leu	Leu	Gly	Glu	Gln	Ala	Ala	Glu				
	115					120						125							

Glu Ser Lys Glu Ala Ile Ala Asn Ser Leu Lys Gly Ser Asp Met Val  
 130 135 140  
 Phe Ile Thr Ala Gly Met Gly Gly Gly Thr Gly Ser Gly Ala Ala Pro  
 145 150 155 160  
 Val Val Ala Gln Ile Ala Lys Glu Ala Gly Tyr Leu Thr Val Gly Val  
 165 170 175  
 Val Thr Tyr Pro Phe Ser Phe Glu Gly Arg Lys Arg Ser Val Gln Ala  
 180 185 190  
 Leu Glu Ala Ile Glu Lys Leu Gln Lys Asn Val Asp Thr Leu Ile Val  
 195 200 205  
 Ile Pro Asn Asp Arg Leu Leu Asp Ile Ala Asp Glu Gln Thr Pro Leu  
 210 215 220  
 Gln Asp Ala Phe Leu Leu Ala Asp Asp Val Leu Arg Gln Gly Val Gln  
 225 230 235 240  
 Gly Ile Ser Asp Ile Thr Ile Pro Gly Leu Val Asn Val Asp Phe  
 245 250 255  
 Ala Asp Val Lys Ala Val Met Lys Asp Ser Gly Thr Ala Met Leu Gly  
 260 265 270  
 Val Gly Val Ser Ser Ser Lys Asn Arg Ala Glu Glu Ala Ala Glu Gln  
 275 280 285  
 Ala Thr Leu Ala Pro Leu Ile Gly Ser Ser Ile Gln Ser Ala Thr Gly  
 290 295 300  
 Val Val Tyr Asn Ile Thr Gly Gly Lys Asp Ile Thr Leu Gln Glu Val  
 305 310 315 320  
 Asn Arg Val Ser Gln Val Val Thr Ser Leu Ala Asp Pro Ser Ala Asn  
 325 330 335  
 Ile Ile Phe Gly Ala Val Val Asp Glu Arg Tyr Asn Gly Glu Ile His  
 340 345 350  
 Val Thr Ile Ile Ala Thr Gly Phe Thr Gln Ser Phe Gln Lys Thr Leu  
 355 360 365  
 Leu Ser Asp Pro Arg Gly Ala Lys Leu Ala Asp Lys Gly Pro Val Ile  
 370 375 380  
 Gln Glu Ser Met Ala Ser Pro Val Thr Leu Arg Ser Ser Thr Ser Pro  
 385 390 395 400  
 Ser Thr Thr Ser Arg Thr Pro Thr Arg Arg Leu Phe Phe  
 405 410

&lt;210&gt; 30

&lt;211&gt; 419

&lt;212&gt; PRT

&lt;213&gt; Nicotiana tabacum

&lt;400&gt; 30

Met Ala Thr Met Leu Gly Leu Ser Asn Pro Ala Glu Ile Ala Ala Ser  
 1 5 10 15  
 Ser Pro Ser Ser Thr Ser Phe Ala Phe Tyr His Ser Ser Phe Ile Pro  
 20 25 30  
 Lys Gln Cys Cys Phe Thr Lys Ala Arg Arg Lys Ser Leu Cys Lys Pro  
 35 40 45  
 Gln Arg Phe Ser Ile Ser Ser Ser Phe Thr Pro Phe Asp Ser Ala Lys  
 50 55 60  
 Ile Lys Val Ile Gly Val Gly Gly Gly Gly Asn Asn Ala Val Asn Arg  
 65 70 75 80  
 Met Ile Gly Ser Gly Leu Gln Gly Val Asp Phe Tyr Ala Ile Asn Thr  
 85 90 95  
 Asp Ala Gln Ala Leu Leu Gln Ser Ala Ala Glu Asn Pro Leu Gln Ile

100					105					110						
Gly	Glu	Leu	Leu	Thr	Arg	Gly	Leu	Gly	Thr	Gly	Gly	Asn	Pro	Leu	Leu	
115					120					125						
Gly	Glu	Gln	Ala	Ala	Glu	Glu	Ser	Lys	Glu	Ala	Ile	Ala	Asn	Ser	Leu	
130					135					140						
Lys	Gly	Ser	Asp	Met	Val	Phe	Ile	Thr	Ala	Gly	Met	Gly	Gly	Gly	Thr	
145					150					155					160	
Gly	Ser	Gly	Ala	Ala	Pro	Val	Val	Ala	Gln	Ile	Ala	Lys	Glu	Ala	Gly	
165					170					175						
Tyr	Leu	Thr	Val	Gly	Val	Val	Thr	Tyr	Pro	Phe	Ser	Phe	Glu	Gly	Arg	
180					185					190						
Lys	Arg	Ser	Val	Gln	Ala	Leu	Glu	Ala	Ile	Glu	Lys	Leu	Gln	Lys	Asn	
195					200					205						
Val	Asp	Thr	Leu	Ile	Val	Ile	Pro	Asn	Asp	Arg	Leu	Leu	Asp	Ile	Ala	
210					215					220						
Asp	Glu	Gln	Thr	Pro	Leu	Gln	Asp	Ala	Phe	Leu	Ala	Asp	Asp	Val		
225					230					235					240	
Leu	Arg	Gln	Gly	Val	Gln	Gly	Ile	Ser	Asp	Ile	Ile	Thr	Ile	Pro	Gly	
245					250					255						
Leu	Val	Asn	Val	Asp	Phe	Ala	Asp	Val	Lys	Ala	Val	Met	Lys	Asp	Ser	
260					265					270						
Gly	Thr	Ala	Met	Leu	Gly	Val	Gly	Val	Ser	Ser	Ser	Lys	Asn	Arg	Ala	
275					280					285						
Glu	Glu	Ala	Ala	Glu	Gln	Ala	Thr	Leu	Ala	Pro	Leu	Ile	Gly	Ser	Ser	
290					295					300						
Ile	Gln	Ser	Ala	Thr	Gly	Val	Val	Tyr	Asn	Ile	Thr	Gly	Gly	Lys	Asp	
305					310					315					320	
Ile	Thr	Leu	Gln	Glu	Val	Asn	Arg	Val	Ser	Gln	Val	Val	Thr	Ser	Leu	
325					330					335						
Ala	Asp	Pro	Ser	Ala	Asn	Ile	Ile	Phe	Gly	Ala	Val	Val	Asp	Glu	Arg	
340					345					350						
Tyr	Asn	Gly	Glu	Ile	His	Val	Thr	Ile	Ile	Ala	Thr	Gly	Phe	Thr	Gln	
355					360					365						
Ser	Phe	Gln	Lys	Thr	Leu	Leu	Ser	Asp	Pro	Arg	Gly	Ala	Lys	Leu	Ala	
370					375					380						
Asp	Lys	Gly	Pro	Val	Ile	Gln	Glu	Ser	Met	Ala	Ser	Pro	Val	Thr	Leu	
385					390					395					400	
Arg	Ser	Ser	Thr	Ser	Pro	Ser	Thr	Thr	Ser	Arg	Thr	Pro	Thr	Arg	Arg	
405					410					415						

Leu Phe Phe

&lt;210&gt; 31

&lt;211&gt; 408

&lt;212&gt; PRT

&lt;213&gt; Nicotiana tabacum

&lt;400&gt; 31

Gly	Leu	Ser	Ser	Asn	Thr	Gly	Ile	Asp	Ile	Leu	Ser	Ser	Ser	Ser	Asn	
1				5				10						15		
Ser	Leu	Ser	Phe	Tyr	His	Ser	Thr	Arg	Phe	Thr	Gln	Cys	Phe	Ser	Pro	
20					25					30						
Lys	Ser	Leu	Cys	Lys	Arg	Gln	Arg	Arg	Arg	Phe	Ser	Ile	Cys	Ser	Ser	
35					40					45						
Leu	Ser	Ser	Ala	Lys	Ile	Lys	Val	Val	Gly	Val	Gly	Gly	Gly	Gly	Asn	
50					55					60						

Asn Ala Val Asn Arg Met Ile Gly Ser Gly Leu Gln Gly Val Asp Phe  
 65 70 75 80  
 Tyr Ala Val Asn Thr Asp Ala Gln Ala Leu Leu Gln Ser Thr Val Glu  
 85 90 95  
 Asn Pro Ile Gln Ile Gly Glu Leu Leu Thr Arg Gly Leu Gly Thr Gly  
 100 105 110  
 Gly Asn Pro Leu Leu Gly Glu Gln Ala Ala Glu Glu Ser Lys Glu His  
 115 120 125  
 Ile Ala Asn Ala Leu Lys Gly Ser Asp Met Val Phe Ile Thr Ala Gly  
 130 135 140  
 Met Gly Gly Gly Thr Gly Ser Gly Ala Ala Pro Val Val Ala Gln Ile  
 145 150 155 160  
 Ala Lys Glu Ala Gly Tyr Leu Thr Val Gly Val Val Thr Tyr Pro Phe  
 165 170 175  
 Ser Phe Glu Gly Arg Lys Arg Ser Leu Gln Ala Leu Glu Ala Ile Glu  
 180 185 190  
 Lys Leu Gln Lys Asn Val Asp Thr Leu Ile Val Ile Pro Asn Asp Arg  
 195 200 205  
 Leu Leu Asp Ile Ala Asp Glu Gln Thr Pro Leu Gln Asn Ala Phe Leu  
 210 215 220  
 Leu Ala Asp Asp Val Leu Cys Gln Gly Val Gln Gly Ile Ser Asp Ile  
 225 230 235 240  
 Ile Thr Ile Pro Gly Leu Val Asn Val Asp Phe Ala Asp Val Lys Ala  
 245 250 255  
 Ile Met Lys Asp Ser Gly Thr Ala Met Leu Gly Val Gly Val Ser Ser  
 260 265 270  
 Ser Arg Asn Arg Ala Glu Glu Ala Ala Glu Gln Ala Thr Leu Ala Pro  
 275 280 285  
 Leu Ile Gly Leu Ser Ile Gln Ser Ala Thr Gly Val Val Tyr Asn Ile  
 290 295 300  
 Thr Gly Gly Lys Asp Ile Thr Leu Gln Glu Val Asn Lys Val Ser Gln  
 305 310 315 320  
 Val Val Thr Ser Leu Ala Asp Pro Ser Ala Asn Ile Ile Phe Gly Ala  
 325 330 335  
 Val Val Asp Glu Arg Tyr Asn Gly Glu Ile Gln Val Thr Leu Ile Ala  
 340 345 350  
 Thr Gly Phe Ala Gln Ser Phe Gln Asn Ser Leu Leu Thr Asp Pro Arg  
 355 360 365  
 Gly Ala Lys Leu Val Asp Lys Ser Lys Gly Thr Thr Glu Arg Thr Val  
 370 375 380  
 Ser Pro Asp Thr Leu Arg Ser Ser Glu Ser Pro Ser Thr Lys Pro Arg  
 385 390 395 400  
 Pro Ala Ala Arg Arg Leu Phe Phe  
 405

<210> 32  
 <211> 413  
 <212> PRT  
 <213> Nicotiana tabacum

<400> 32  
 Met Ala Thr Met Leu Gly Leu Ser Ser Asn Thr Gly Ile Asp Ile Leu  
 1 5 10 15  
 Ser Ser Ser Ser Asn Ser Leu Ser Phe Tyr His Ser Thr Arg Phe Thr  
 20 25 30  
 Gln Cys Phe Ser Pro Lys Ser Leu Cys Lys Arg Gln Arg Arg Arg Phe



35	40	45
Ser Ile Cys Ser Ser Leu Ser Ser Ala Lys Ile Lys Val Val Gly Val		
50	55	60
Gly Gly Gly Gly Asn Asn Ala Val Asn Arg Met Ile Gly Ser Gly Leu		
65	70	75
Gln Gly Val Asp Phe Tyr Ala Val Asn Thr Asp Ala Gln Ala Leu Leu		
85	90	95
Gln Ser Thr Val Glu Asn Pro Ile Gln Ile Gly Glu Leu Leu Thr Arg		
100	105	110
Gly Leu Gly Thr Gly Gly Asn Pro Leu Leu Gly Glu Gln Ala Ala Glu		
115	120	125
Glu Ser Lys Glu His Ile Ala Asn Ala Leu Lys Gly Ser Asp Met Val		
130	135	140
Phe Ile Thr Ala Gly Met Gly Gly Gly Thr Gly Ser Gly Ala Ala Pro		
145	150	155
Val Val Ala Gln Ile Ala Lys Glu Ala Gly Tyr Leu Thr Val Gly Val		
165	170	175
Val Thr Tyr Pro Phe Ser Phe Glu Gly Arg Lys Arg Ser Leu Gln Ala		
180	185	190
Leu Glu Ala Ile Glu Lys Leu Gln Lys Asn Val Asp Thr Leu Ile Val		
195	200	205
Ile Pro Asn Asp Arg Leu Leu Asp Ile Ala Asp Glu Gln Thr Pro Leu		
210	215	220
Gln Asn Ala Phe Leu Leu Ala Asp Asp Val Leu Cys Gln Gly Val Gln		
225	230	235
Gly Ile Ser Asp Ile Ile Thr Ile Pro Gly Leu Val Asn Val Asp Phe		
245	250	255
Ala Asp Val Lys Ala Ile Met Lys Asp Ser Gly Thr Ala Met Leu Gly		
260	265	270
Val Gly Val Ser Ser Ser Arg Asn Arg Ala Glu Glu Ala Ala Glu Gln		
275	280	285
Ala Thr Leu Ala Pro Leu Ile Gly Ser Ser Ile Gln Ser Ala Thr Gly		
290	295	300
Asp Val Tyr Asn Ile Thr Gly Gly Lys Asp Ile Thr Leu Gln Glu Val		
305	310	315
Asn Lys Val Ser Gln Val Val Thr Ser Leu Ala Asp Pro Ser Ala Asn		
325	330	335
Ile Ile Phe Gly Ala Val Val Asp Glu Arg Tyr Asn Gly Glu Ile Gln		
340	345	350
Val Thr Leu Ile Ala Thr Gly Phe Ala Gln Ser Phe Gln Asn Ser Leu		
355	360	365
Leu Thr Asp Pro Arg Gly Ala Lys Leu Val Asp Lys Ser Lys Gly Thr		
370	375	380
Thr Glu Arg Thr Val Ser Pro Asp Thr Leu Arg Ser Ser Glu Ser Pro		
385	390	395
Ser Thr Lys Pro Arg Pro Ala Thr Arg Arg Leu Phe Phe		400
405	410	